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THE HEALTH MAGAZINE
OF THE AMERICAN MEDICAL ASSOCIATION

HYGEIA

MARCH
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Safe, Painless Childbirth
By Morris Fishbein, M.D.

Progress Against Paralysis
By Richard Kovacs, M.D.

Syphilis
By Greer Williams

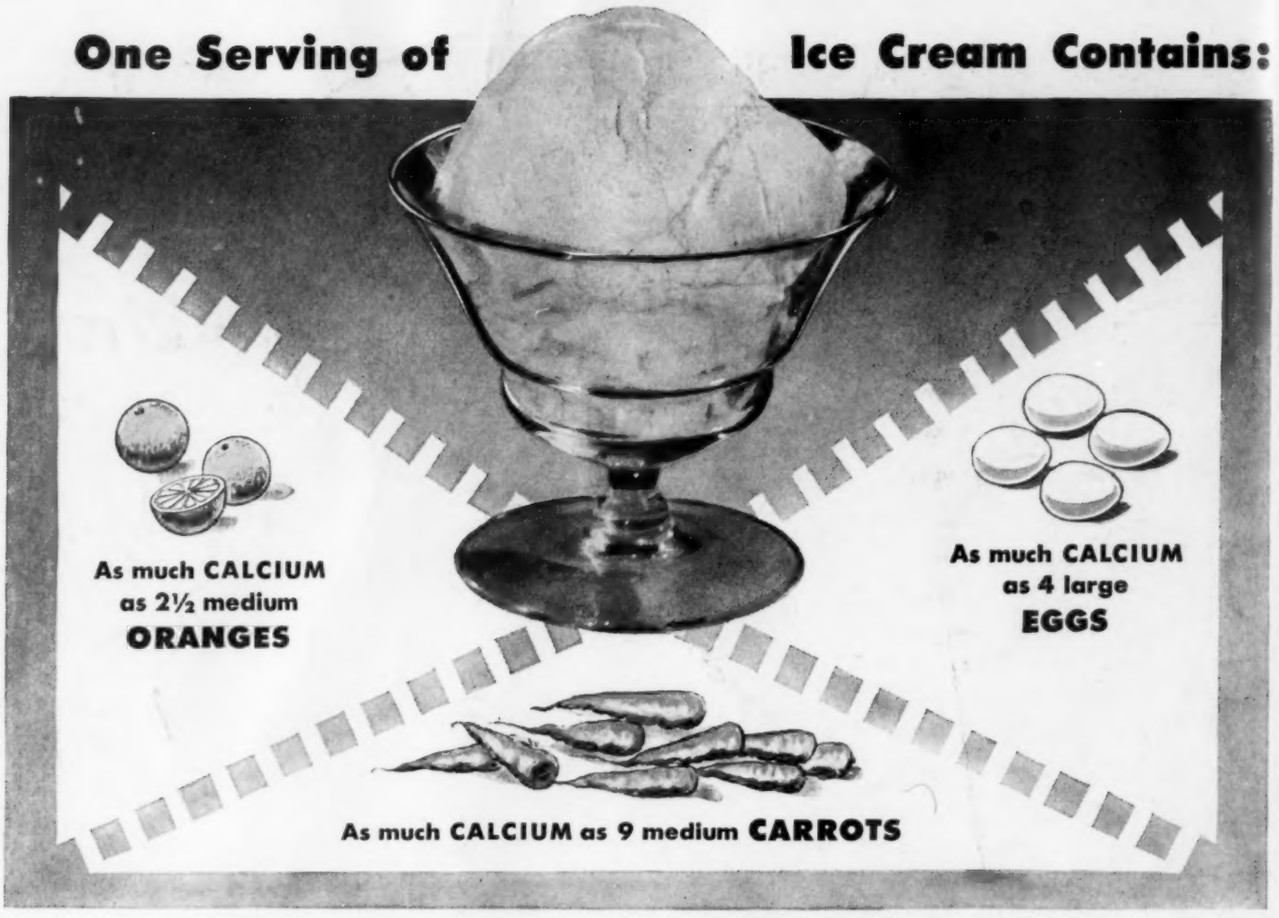
Buildup for 1-B's
By Will O'Neil

MILITARY MEDICAL CARE
By Harold C. Lueth, M.D.

THE FOOD WE EAT
By Miriam Zeller Gross

HEARING AIDS
By Howard A. Carter

One Serving of Ice Cream Contains:



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ICE CREAM — A VITAL PART OF YOUR NUTRITION PROGRAM

BABIES SUPERVISED BY PHYSICIANS ARE BETTER BABIES

52

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WILLIAM HARVEY (1578-1657)

Discoverer of the circulation of the blood

hygeia

THE HEALTH MAGAZINE

535 N. DEARBORN ST., CHICAGO, ILL.

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MARCH

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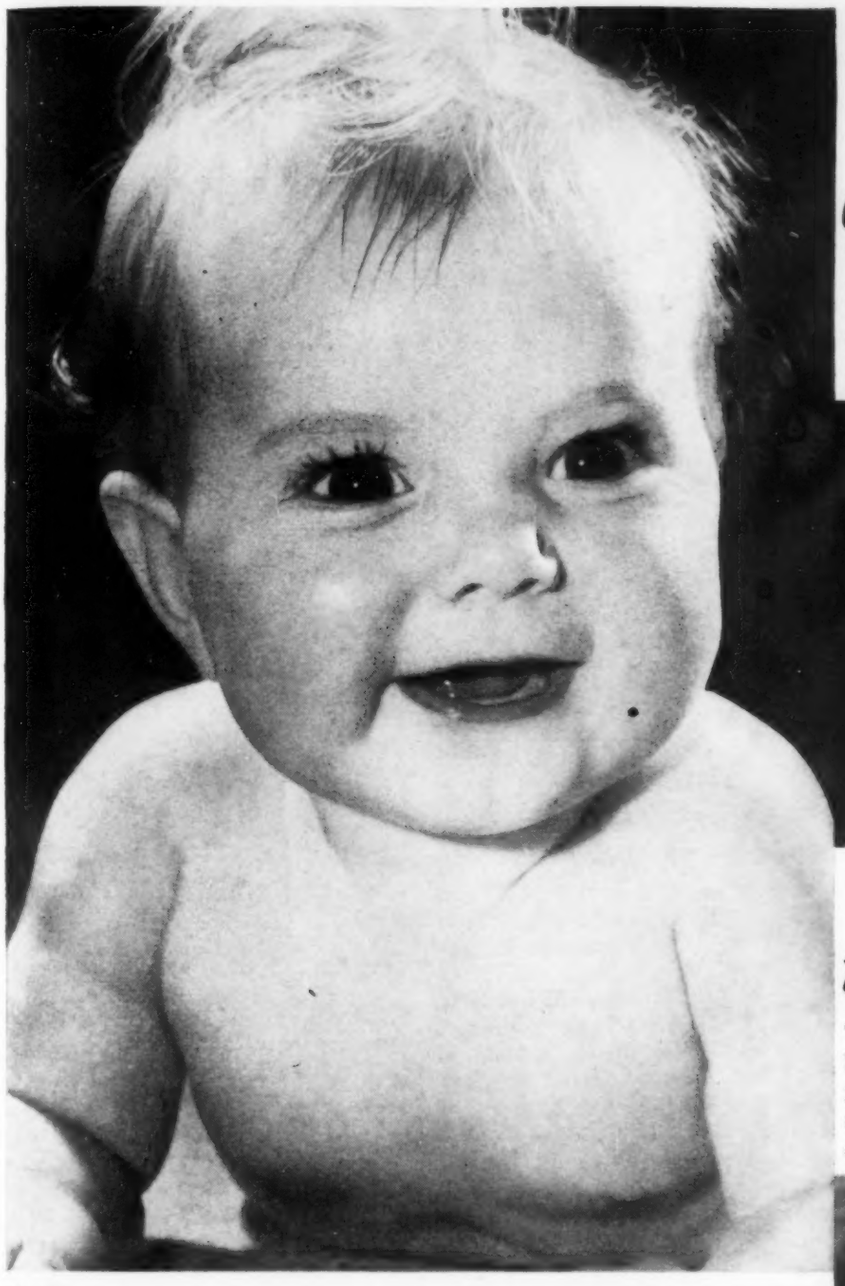

On the alert!

The first tooth . . . the first step . . . busy days are ahead! Now's the time to prepare for them. Without enough Vitamin D your baby can't build sound teeth or straight legs; so give a dependable source — Squibb Cod Liver Oil.

trying to talk....

The first "mu...da...ma" is a thrill! You know he'll soon be forming words. Don't forget. While your baby is growing, help him also build straight legs...a well-shaped head...a full chest... a strong back. *Every day*—Squibb Cod Liver Oil!

What a fine full chest tells about growth

It's a sign baby is building his bones correctly! A well-shaped head, a straight back, a full chest, straight legs and sound teeth are other signs. To build them well your baby needs plenty of Vitamin D in addition to a well-balanced diet. Start now and give him cod liver oil every single day.

WHY IT'S IMPORTANT TO GET SQUIBB'S... Cod liver oils differ in vitamin content; so choose one you know is reliable. Squibb's contains twice as many Vitamin A and D units as cod liver oil which just meets U. S. Pharmacopeia requirements. Give your baby extra vitamins with Squibb's . . . . *The priceless ingredient of every product is the honor and integrity of its maker.*

SQUIBB
COD LIVER OIL

"The Adcomber"

looks at Hygeia ads

Here's a fresh idea on how to stay that way . . . use FRESH No. 2 to control perspiration and prevent underarm odor. Have you tried the practical test recommended on page 201? . . . Say you do, then!

Yes, We Have No Bread Shortage Today —for American bakers are hustling the good white loaves into food stores everywhere. And they're making those "good white loaves" with nutritious ENRICHED FLOUR, fortified with important vitamins and minerals! . . . Lots of food for the money in ENRICHED BREAD! Are you serving plenty in your home? (Page 203.)

Thumbs are definitely DOWN on infections among basket ball players—and the rest of the athletes. Reason enough, then, why the trainer carries Iodine in his bag for quick application to cuts and scratches, scrapes and burns. For Iodine, also, is definitely DOWN ON INFECTION. Do you keep it always handy? . . . See page 168.

$4 return for every $3 invested . . . in just ten years! A "good thing"? . . . No—*a gold mine!* Like to get in on a real "ground floor" this time? . . . Read page 217, under "Me? Stop a Tank?"

Week in, week out—year in, year out—fastidious folks are using Nonspi. Helps, they say, to close the underarm perspiration glands. And where there is no perspiration, there is no unpleasant odor. Ten cents brings a generous trial supply of Nonspi. Use address on page 231 . . .

Are you among the "calcium conscious"? Or have you escaped the pills and powders? Better get yours via ICE CREAM—and you'll *love taking calcium!* (See inside front cover.)

Youngsters' feet these days—like grown-ups'—are traveling faster and farther than ever . . . collecting scrap, walking to school to save the car, doing a thousand helpful errands. Youngsters' SHOES these days must wear longer and better . . . And THAT'S an order you can fill with Poll-Parrots!—page 225.

Can your back take it? . . . If the long, long wartime working days are wearing you down, better hunt up a corset department where trained fitters administer the blessed relief of Camp Scientific Supports. Look for the Camp sign! (170)

Amazing—but TRUE: Your eyes control 80% of your motions. And whether your job is darning socks or transcribing shorthand or building bombers, *your eyes* are your most essential tool . . . Don't let spoilage waste your time and materials and patience. ***Keep your vision keen.*** . . . How? See page 171.

THE ADCOMBER

Who's Who

IN

HYGEIA

WILL O'NEIL's idea of a pleasant evening's entertainment is to sit down at home with a huge batch of new OPA regulations governing wholesale and retail prices and decode the official language into an understandable working interpretation. That this unique diversion is helpful to him in his job as war agencies reporter for the Chicago *Sun* is only a happy coincidence; O'Neil's craving for information is actually a constitutional urge, not simply an occupational expediency. This urge has brought him to the age of 33 with an intimate knowledge of an extraordinary variety of groups and businesses. At one time or another, he has been a busboy, waiter, restaurant manager, bellboy, deckhand, steward, relief worker, statistician and research assistant in meteorology. An example of his versatility is furnished by his experience at the Chicago World's Fair: During the first year of the Fair he wore shorts and a sun helmet, pulled visitors around the grounds in a ricksha; the next year, he changed to a white coat and lectured in the Hall of Science!

O'Neil was graduated from the University of Michigan in 1932 and stayed on there for two years as a graduate student and assistant in the department of geography. After a short turn as a relief worker in Buffalo, he joined the staff of the Chicago *Tribune*, where he spent the next five years as a reporter, feature writer, and talent scout for WGN, the *Tribune's* radio station. He was in Washington as an information specialist in the venereal disease division of the United States Public Health Service in 1941 when the Chicago *Sun* was founded, and he came to Chicago to attend the birth and take part in its growth and development. At the *Sun*, O'Neil has become an expert in war agencies and government bureaus. On his beat at the moment are the local command headquarters of the Army and Navy and the regional offices of, among others, the OPA, WMC, ODT, WPB, OCD and OWI. "Buildup for 1-B's," his story in this issue of HYGEIA about the Army's school for limited service men at Camp McCoy, Wis., grew out of a routine Army assignment for the *Sun*. O'Neil heard about Camp McCoy and couldn't sleep nights until he'd been there to see for himself. He craves information.

EDITH G. NEISSER is vice president of the Association for Family Living in Chicago, of whose program for parental education she writes in "When Baby's on the Way," on page 196 of this issue of HYGEIA. The Association, though, like her writing, is an extracurricular interest for Mrs. Neisser. On straight time, she's a housewife and mother in suburban Highland Park, Ill., where she becomes involved, as she says, in "all the community activities that fall to the lot of those who are conscientious and don't know when to keep still."

A native of Milwaukee, Wis., Mrs. Neisser is a graduate of Vassar College. With her husband and their two boys, she has traveled a lot in the western United States, where they've gone in more for riding, climbing and ranching than for scenery and culture—as families with lively boys are likely to do. At that, Mrs. Neisser reports, the neighbors in Highland Park acknowledge that her sons are "un-

(Continued on page 168)

What's the matter with Mary Jane?

THE family's going to the movies again. What *is* the matter with Mary Jane?

Her parents couldn't understand it—not until they watched Mary Jane while she watched the movies. Mary Jane was squinting. She was frowning. And when she got home, she had a headache.

After Mary Jane had gone to bed, her parents sat talking. There were so many things that Mary Jane didn't like to do any more. Even her school work had fallen off alarmingly this year. It seemed incredible in such a child—but her parents finally decided that her eyes were the cause of Mary Jane's trouble.

They were right. The eye examination showed that Mary Jane needed glasses.

She's got those glasses now. And once more she's the bright and sunny little girl that she used to be.

Mary Jane's case is not unusual among children. But the signs are not always so obvious—and young eyes can grow worse unless correction is taken care of promptly.

There's one way to be *sure* that your child has—and will have—perfect sight. And that is to be sure he has an eye examination *regularly*.

HOW DO SOFT-LITE LENSES HELP YOUR EYES?

Soft-Lite Lenses are scientifically designed to benefit eyes which are over-sensitive to glare — by controlling the amount of light reaching the eye. Soft-Lite Lenses do not alter color values. Made by Bausch & Lomb, they are ground to any prescription and are often prescribed for children as well as adults.

There is only one Soft-Lite—identified by this certificate.

AMERICA NEEDS YOUR EYES

Soft-Lite Lenses

SOFT-LITE LENS COMPANY, INC., 745 FIFTH AVENUE, NEW YORK

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DRY?

...then try **Marcelle**

DRY SKIN FOUNDATION CREAM

This cream especially formulated to combat skin dryness may prove the answer to your need. Known irritants have been removed or reduced to a minimum.

Apply MARCELLE hypo-allergenic DRY SKIN FOUNDATION CREAM to help soothe skin chapped by March winds. Use the cream regularly as a powder base to aid in keeping your skin soft and lovely.

SAMPLE KIT

Have you received a sample kit of Marcelle beauty aids? Ask for your set today—enough of five daily needs to last a week. Just send one dime and your name on the coupon below for samples of: Marcelle hypo-allergenic Cleansing Cold Cream, Skin Lubricating Cream, Face Powder, Rouge and Lipstick.

Marcelle hypo-allergenic COSMETICS

1741 N. Western Ave., Chicago, Ill.

Please send me the five sample beauty aids. I enclose 10c.

Blonde..... Brunette..... Auburn.....

NAME.....H-3-43

ADDRESS.....

LETTERS FROM *Readers*

Nurses' Residence

To the Editor:

We receive the magazine regularly at the nurses' residence. Our students read and use the magazine in their health education courses, and at the end of the year the copies are bound and placed in our library for reference. I like to have the young students read it particularly because the articles are written in terms they can understand readily before they have acquired a professional vocabulary.

MARY J. WALTHOUR, R.N.
Worcester City Hospital,
Worcester, Mass.

In the Doctor's Office

To the Editor:

HYGEIA is one of the most popular magazines in my reception room.

EDWIN J. WASHLE, D.D.S.
Louisville, Ky.

To the Editor:

No one reads HYGEIA. It can't compete with "Life" on the waiting room table. F. W. PENHALL, M.D.
Morton, Minn.

Oops, Error!

To the Editor:

HYGEIA is a popular health magazine and is supposed to have more or less official standing. That being the case, it comes somewhat as a shock when one reads in the August 1942 issue that ostriches sometimes foolishly bury their heads in the sand at the approach of danger. I quote: ". . . sometimes foolishly burying his head in the sand at the approach of danger" (page 599).

What statement could be more absurd? It is not based on any known fact, and it seems unfortunate that it should be sponsored by a scientific journal. Aside from that, it does not add to the credibility of the article entitled "Why We Need Glasses."

H. LYMAN HOOKER, M.D.
New York City

79 and Going Strong

To the Editor:

I am 79 years of age, but as long as I can see to read I'll continue to take HYGEIA. It is full of sane health advice which no one is too old to follow. I have given HYGEIA gift subscriptions to all my children, relatives and friends.

Wheaton, Ill. FRANK F. SCHIEBER

Not on Newsstands

To the Editor:

I have been disappointed many times at not being able to secure HYGEIA from a local newsstand, and since it is one of the best magazines of its kind published, I think it should be in every home today, especially since our health and methods of living have become so important. MAUDE A. PHILLIPS

Rocky Mount, N. C.

Gym Teacher

To the Editor:

I am a physical education teacher in a junior and senior high school, and I feel that the HYGEIA magazine is necessary in my subject.

ELNA RUTH WOMACK
Texarkana, Tex.

Hygeia and Home Nursing

To the Editor:

We use extensively the health articles in HYGEIA in our home nursing course. As you no doubt know, we are giving particular emphasis during wartime to pre-

SMALLPOX

has *not* been wiped out of the U. S.! In a single year recently there were more cases of smallpox in the U. S. than in any other country in the world except India!

DIPHTHERIA

is on the way to being conquered . . . because immunization against it is carried out so widely. But the child who has *not* been immunized is still threatened by this dangerous disease.

WHOOPING COUGH

is *not* to be regarded lightly. Ask your physician! It causes more *deaths* among children one year old than diphtheria, smallpox, scarlet fever and measles combined!

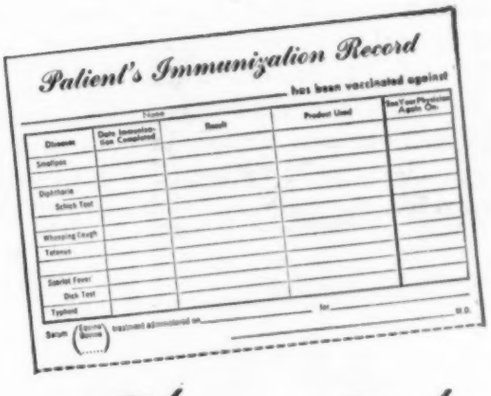
PROTECT YOUR CHILDREN!

THE ARMED SERVICES cannot protect your children from the violence of Smallpox, Diphtheria, and Whooping Cough, but your Doctor can! Have you let him immunize them against these serious diseases? A recent nationwide Roper Survey indicates that many mothers postpone this simple protection until it is too late!

War is shifting our population, and such migrations spread disease. If your children have *not* been immunized during the past six years, have your physician give them this protection at once!

• • •

THE IMMUNIZATION RECORD CARD shown here is designed for your convenience. Ask your physician to give you one for each member of your family. The card records immunization against six common diseases, and tells when re-immunization is necessary. Sharp & Dohme provides these cards to the medical profession without charge.



Patient's Immunization Record

has been vaccinated against

Disease	Date Immunization Completed	Result	Product Used	Re-Vaccination Again On:
Smallpox				
Diphtheria				
Schick Test				
Whooping Cough				
Tetanus				
Scarlet Fever				
Dick Test				
Typhoid				

Serum (Equine / Bovine) treatment administered on _____ for _____ M.D.

Sharp & Dohme

PHILADELPHIA

venting the spread of infectious diseases to epidemic proportions and to teaching more organized and skilled care of the sick in the home. We have many of the articles in HYGEIA copied and distributed to our forty-seven home nursing instructors. We have usually indexed all pertinent HYGEIA articles according to chapters of our American Red Cross Home Hygiene and Care of the Sick Textbook.

We are indeed indebted to HYGEIA for the splendid help these articles give our instructors.

ANITA I. DISCON

New Orleans Chapter,
American Red Cross,
New Orleans, La.

Who's Who in Hygeia

(*Continued from page 164*)

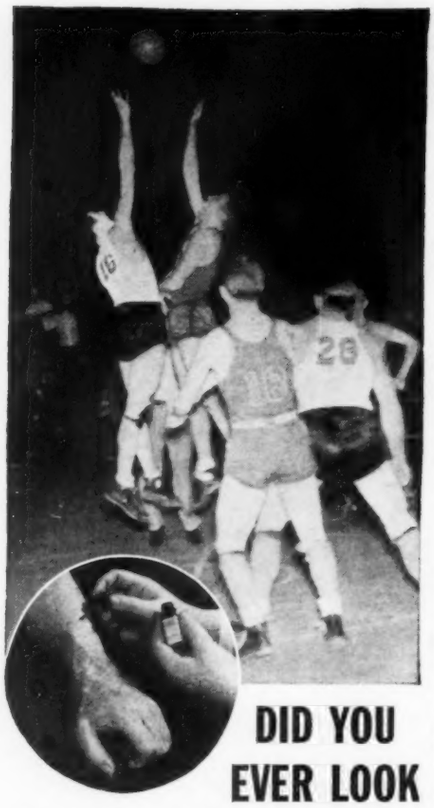
commonly nice boys considering the fact that their parents are so interested in child study."

Visitors to the homes of WELDON D. WOODSON and RAYMOND W. THORP in Los Angeles are somewhat disposed to nervous indigestion. Housed on the premises, they know, are literally thousands of black widows, tarantulas and all the other species of spider with which Thorp and Woodson have been preoccupied for years. Most of the spiders are housed in glass jars in the Woodson basement, but experienced callers take little comfort from this; they know that one or another of the investigators is likely at any time to bring a tarantula up to the living room to demonstrate a point in an argument.

Thorp and Woodson have been successful free lance writers for many years, both specializing in scientific and nature subjects. Thorp became interested in spiders involuntarily about ten years ago when one of his four sons, then aged 11, started bringing scorpions home to play with. Woodson was drawn into the study shortly afterward, and the two began an intensive research in spider lore which has resulted in hundreds of magazine articles (cf. "Dangerous Spiders," page 192) and a book on the black widow which is about to be published. Thorp has written another book, "Bowie Knife—A Saga of Early America," which he expects to publish after the war. Woodson is strictly a spider man.

ALSTON CALLAHAN, M.D., is ophthalmologist at the Ponce de Leon Eye and Ear Infirmary, Atlanta, Ga. He is a graduate of Tulane University medical school, class of 1933, and a member of the American Academy of Ophthalmology and Otolaryngology and has contributed articles to the professional journals of that field as well as to the general scientific literature. In addition, he has professional standing as a photographer and has published articles and pictures in national photographic magazines. The picture illustrating his article, "Does Your Child See?" on page 224 of this issue, is his own work. Dr. Callahan's activities are abated somewhat at the moment by the recent arrival of a daughter in his home. "At least," he says, "she will get proper eye care!"

RICHARD KOVACS, M.D. ("Progress Against Paralysis," page 180) is a clinical professor and director of physical therapy at New York Polyclinic Medical School and Hospital and the author of several books on physical therapy. HERMAN GOODMAN, M.D., is a dermatologist practicing in New York City; his article on "Perspiration" (page 184) answers questions everybody wonders about at one time or another. HAROLD C. LUETH, M.D. ("Streamlining Military Medical Care," page 194) is a Major in the Medical Corps now serving as liaison officer for the Army and the American Medical Association. GREER WILLIAMS recently left the Chicago *Sun*, of which he was science editor, to become a private in Uncle Sam's ski troops. His knowledge of venereal disease control ("Syphilis—The Great Tragedian," page 182) was gained during his service as an information specialist in venereal diseases for the United States Public Health Service in 1940 and 1941. JAMES W. SMITH, M.D. ("Two Eyes to See With," page 176) is past president of the New York Society for Clinical Ophthalmology.



DID YOU EVER LOOK IN THE TRAINER'S BAG?

No? Well, the next game you see, ask him what he uses for the scrapes and burns, the cuts and scratches, boys get nearly every time they play.

His job is to keep the boys in shape. The best man on the team isn't much help sitting on the bench with an infected knee. The trainer knows that, and he knows Iodine is one of the best ways to prevent infections.

Iodine! 2% Mild Tincture of Iodine!

Now, when you get home look in your medicine closet: your First Aid Kit. Do you find Iodine there? 2% Mild Tincture? If not, get some at your druggist's today. A stitch in time saves nine and a drop of Iodine may save a life.

2% MILD TINCTURE OF IODINE

IODINE EDUCATIONAL BUREAU, INC.
120 BROADWAY NEW YORK, N.Y.

FOOD RATIONING and Nutrition

An Editorial by W. W. Bauer

THE FOOD which people eat is determined by their ability to get the food they want and by food preferences. Only recently have scientific knowledge of nutrition and the varying nutritional qualities of available foodstuffs played any part in our diets.

Today nutrition is determined by knowledge of food requirements, ability to purchase, and availability of foodstuffs. In so-called normal times millions of people have been unable to have adequate diets because they could not afford them. This economic limitation is now greatly reduced by widespread employment and larger earnings. Nationwide food rationing will tend to increase the supply of food for those who have previously been undernourished and reduce the supply for those who previously could have purchased and consumed more food than was actually needed.

Thus far nothing experienced by the American people in the rationing program need cause serious apprehension about maintenance of good nutrition. Limitations on canned foods available will require more careful selection and the wider use of products with low point values in relation to their nutritional contribution. Scarcity of commercially canned goods will place new emphasis on victory gardens, home canning and the home preparation of foods. Canned soups, canned cooked meats, and luxury goods in cans are convenient, but we can get along without them for the duration. Baby foods will no doubt be the last canned goods to be curtailed.

A practical and easily acquired knowledge of nutritional principles will readily enable the housewife to substitute raw cabbage or tomato dishes for citrus fruits when necessary, in case of scarcities, ration point differentials or monetary price differences. In the same way scarcities of butter fat in milk, cream and butter may cause her to substitute other edible fats and to look for vitamin A to the golden yellow and green leafy vegetables.

With the food question bounded on three sides by scarcities, rationing and price considerations, a fourth aspect becomes of increasing importance, namely, a thoroughly practical working knowledge of how to eat. For the housewife, this does not require detailed memorizing or laborious consulting of tabulations to determine the precise vitamin content, mineral constituent, or contribution of protein, carbohydrate or fat for long lists of foodstuffs. It requires only the practical mastery of a relatively simple formula for a daily diet adequate in nutritional standards, available under existing circumstances, and not too difficult to prepare. This simple formula, which has been published previously in HYGEIA, is repeated here:

MILK: 1 pt. for adults; 1½ pts. to 1 qt. for children.
EGG: 1 daily.
MEAT: 1 serving (20 Gms. at 1 year to 100 Gms. [3.5 ounces] for an adult).
VEGETABLES: 2 servings. One green or yellow.
FRUIT: 2 servings. One serving of citrus fruit or tomato and one other fruit as apple or prunes.
POTATO: 1 or more servings.
BUTTER or butter substitute with added vitamin A: (1 to 5 large pats).
CEREAL and bread: whole grain or "enriched" comprising at least half of the total cereal intake.
SUGAR, fat and other food to complete the calory needs.

Arthur C. Allen

Safe, Painless Childbirth

By MORRIS FISHBEIN

DURING 1942, in over a score of U. S. hospitals, 589 women gave birth to babies with none of the labor pangs or suffering traditionally associated with childbirth. Until they were ready to be taken to the delivery room, these mothers rested comfortably in their beds, reading, sleeping, or receiving visitors. When their time came, their babies were delivered normally, safely, but without travail. At last, a safe and painless method of childbirth had been found.

For many years various attempts to give women surcease from pain during childbirth have met with failure. Every drug or anesthetic capable of deadening sensation or inducing unconsciousness or forgetfulness has been tried. Some have been successful in producing unconsciousness or freedom from pain, but threatened to interfere with the normal process of childbirth or jeopardize the life of the unborn child.

Twenty-five years ago two German obstetricians started a world-wide sensation by developing a new technic known as "twilight sleep." The method employed a combination of drugs: morphine for deadening pain, and scopolamine to induce forgetfulness. Twilight sleep never became popular because many a mother became delirious from its effects, and many a baby was born "blue" because it did not receive sufficient oxygen through the blood during the period of childbirth. Popularly, twilight sleep promised much, but produced little for expectant mothers. The long quest for the safe and effective preventive of labor pains went on.

The new technic, called continuous caudal analgesia, is the logical development of a step-by-step investigation that began many years ago. (At the outset, doctors studying the female anatomy saw that the uterus (in which the child grows before birth) receives its nerves from roots that emerge from the lowest portion of the spinal cord and from the nerves of the sympathetic nervous system. Obviously, the pain impulses of childbirth might be blocked somehow in that region.)

The next step was the development of local anesthesia or nerve blocking. Surgeons found that cocaine and drugs derived from it, injected directly around the nerves, would prevent any sensation of pain from passing along those nerves to the brain, where the pain is felt. Then came scientific proof of the safety of spinal anesthesia when properly applied by those trained in the method. More recently, in World War II, many surgical operations, particularly on ships of the U. S. Navy, have had to be performed under local or spinal anesthesia because anesthetics like ether, chloroform, nitrous oxide oxygen, ethylene, and cyclopropane, which are gases, are difficult to use aboard vessels rocking on the high seas.

These discoveries and observations induced among obstetricians the idea that the nerves leading from the uterus could be blocked similarly. Already there *(Continued on page 214)*

FOR MANY YEARS, educational agencies like the National Society for the Prevention of Blindness, the American Medical Association, New York Academy of Medicine and New York Tuberculosis and Health Association have endeavored to impress on our citizens the practical importance of good health. Gratifying results have been achieved in the control of two major diseases, syphilis and tuberculosis. That much remains to be done in disease eradication and prevention is brought out in Medical Bulletin No. 4 of the New York City Selective Service Headquarters. In the age group below 25 years, which should represent the cream of our population, 22.4 per cent were found fit for limited military duty only and 18 per cent were totally disqualified. The percentage of disqualification increased with each successive age group. Between the ages of 26 and 30, 23.8 per cent were rejected. In the group between 31 and 35 years of age, 29 per cent were classified as unfit.

In these physical examinations, the greatest number of rejections was due to bad teeth and defects of the seeing apparatus. Today in our country about 15,000,000 industrial workers have serious eye disorders. Approximately 7,000,000 have subnormal vision, even with the best possible eyeglasses; 4,000,000 lack the ability to coordinate the work of two eyes and fail to perceive accurately the depth of objects in space; and the remaining 4,000,000 are color blind.

Good health and good eyesight are now being stressed in our war program. Major General Lewis B. Hershey, Selective Service Director, recently said that "registrants owe a duty to their government for service—that obligation calls for the service of a whole man, a man entirely alive, a healthy, strong, well developed man. It is the duty of the registrant faced with this responsibility to use every means available to make himself fit to serve."

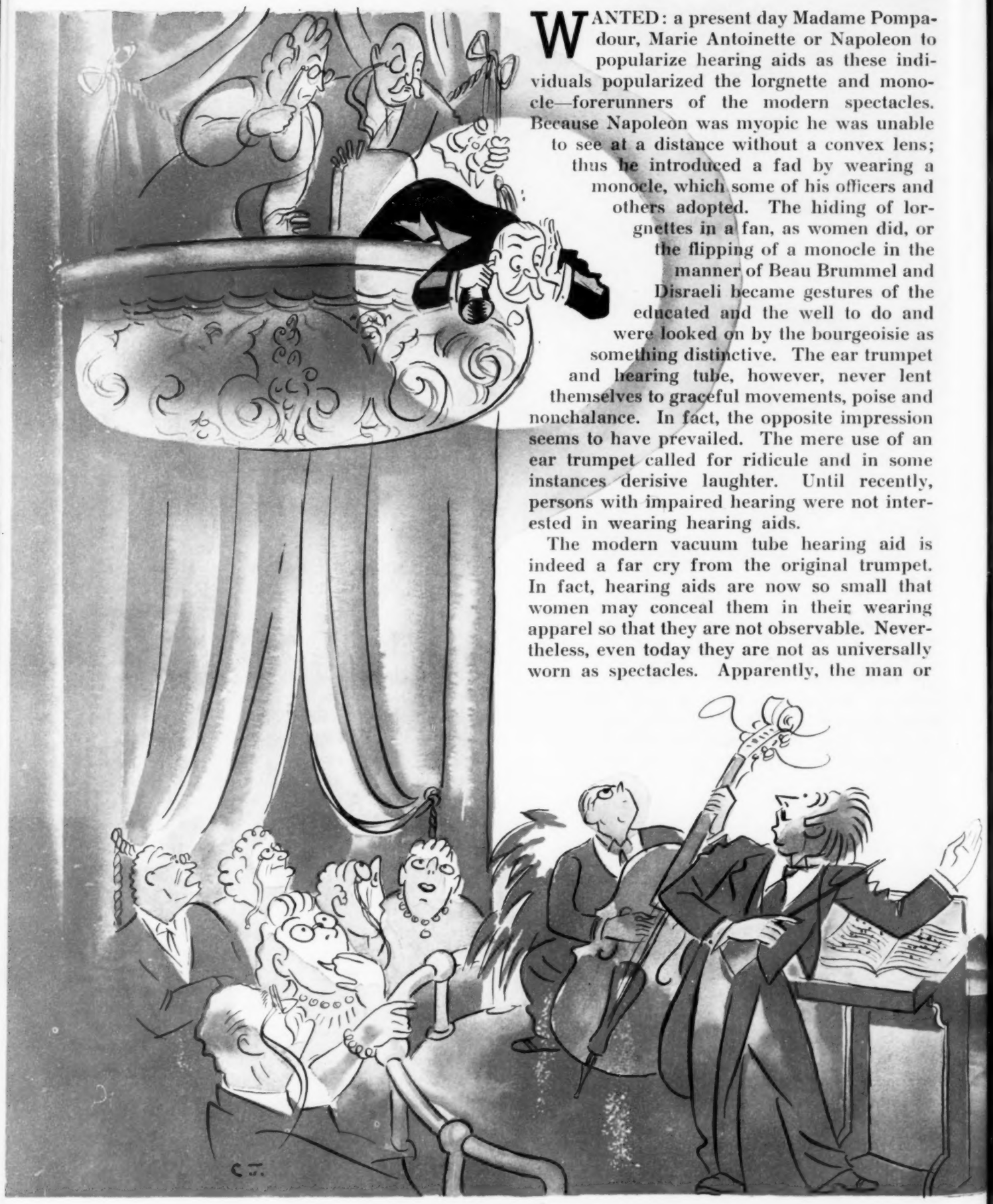
Good eyes today are a social, industrial and patriotic necessity. A popular misconception is that when one's vision is noticeably bad, the fitting of a pair of eyeglasses takes care of everything once and for all. The eyes are integral parts of a complicated living machine like the brain, heart or stomach, and they

often mirror the condition of other organs in the body. By the same token, disorders of eye function are reflected in symptoms suggesting that other organs of the body may be upset.

For comfortable vision, we require two eyes to see with. The left eye is not to be considered as a spare to be used only in case the right one fails. Two eyes with good vision and without any disturbance of muscle action enable us to view the length, depth and breadth of objects in space. Every one is familiar with the stereoscope and how the fusion of two pictures on the slide sets off the figures in the foreground from those in the distance. This faculty of a three dimensional space sense is extremely important to every person, whether it be a crane operator in a steel mill working at a distance of 150 feet or a hosiery mill looper doing fine piecework at 8 inches. Far more accidents result from defects in two-eyed coordination than from subnormal vision. Any woman with normal eyes who has tried to set a table or hammer a nail with one eye shut can appreciate the truth of the foregoing statements.

Large industrial plants, prior to the present emergency, initiated pre-employment eye examinations to ascertain the visual aptitude of each employee. Dr. Hedwig S. Kuhn of Hammond, Ind., recently addressed the New York Society for Clinical Ophthalmology on a study of 16,000 workers in various factories and shops. She found that 21 per cent had subnormal vision, even with glasses; 12 per cent had subnormal vision requiring eyeglasses for improvement; and 16 per cent had defects in stereopsis or depth perception. Five per cent of the workers had imperfect sense of color, and 22 per cent had some imperfection in eye muscle coordination. It is easy to appreciate what an economic loss these craftsmen would produce in trades requiring accurate visual performance. Even more distressing is the physical strain these workers would have to endure to make their livelihood with such inadequate eye equipment.

The order of the day is perfect eyes—on land, on the sea and in the air. Perfect eyesight may qualify a man to be a policeman, but perfect eyesight alone *(Continued on page 220)*



WANTED: a present day Madame Pompadour, Marie Antoinette or Napoleon to popularize hearing aids as these individuals popularized the lorgnette and monocle—forerunners of the modern spectacles. Because Napoleon was myopic he was unable to see at a distance without a convex lens; thus he introduced a fad by wearing a monocle, which some of his officers and others adopted. The hiding of lorgnettes in a fan, as women did, or the flipping of a monocle in the manner of Beau Brummel and Disraeli became gestures of the educated and the well to do and were looked on by the bourgeoisie as something distinctive. The ear trumpet and hearing tube, however, never lent themselves to graceful movements, poise and nonchalance. In fact, the opposite impression seems to have prevailed. The mere use of an ear trumpet called for ridicule and in some instances derisive laughter. Until recently, persons with impaired hearing were not interested in wearing hearing aids.

The modern vacuum tube hearing aid is indeed a far cry from the original trumpet. In fact, hearing aids are now so small that women may conceal them in their wearing apparel so that they are not observable. Nevertheless, even today they are not as universally worn as spectacles. Apparently, the man or

THE HEARING AID OF TOMORROW

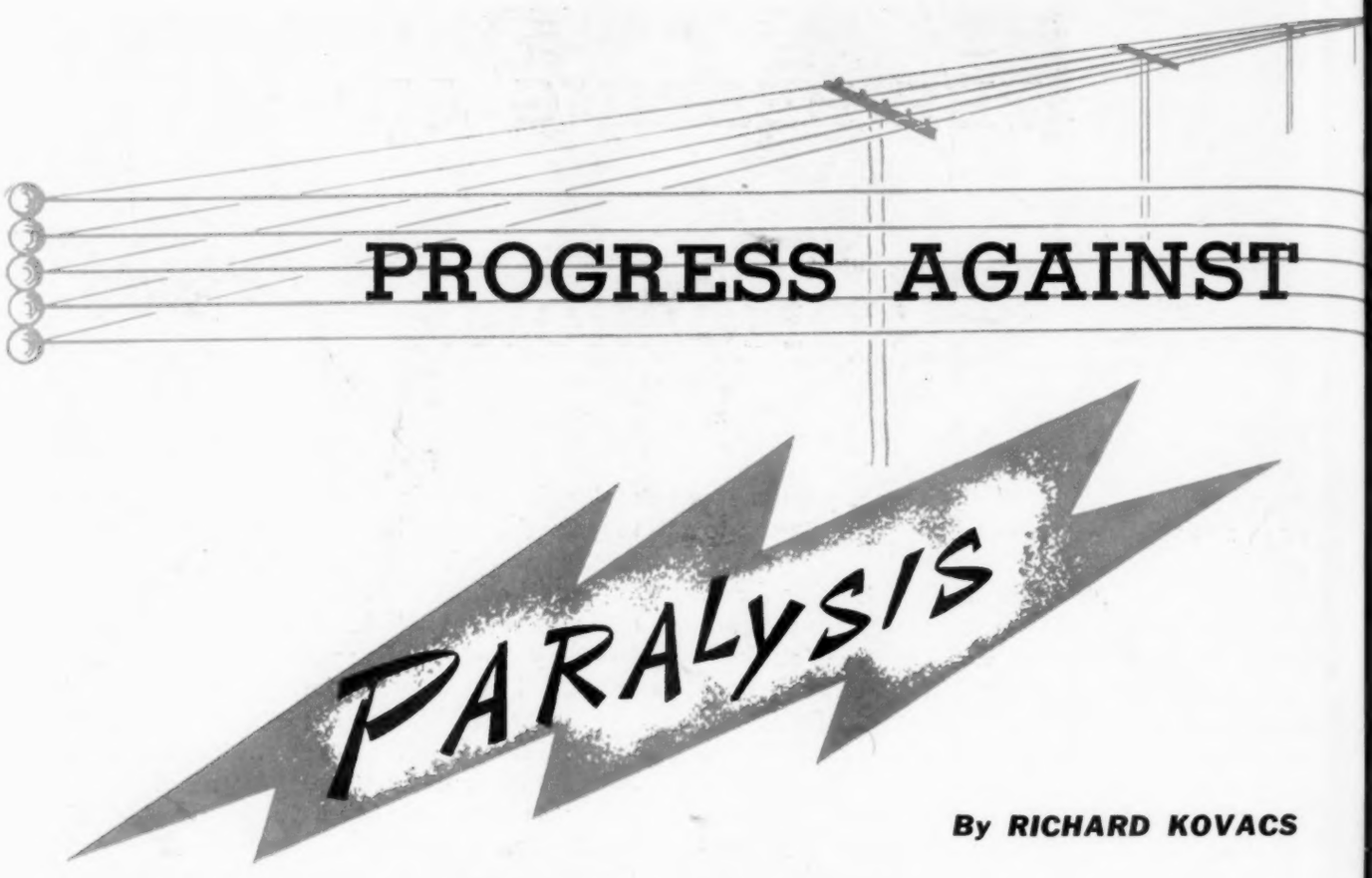
By

HOWARD A. CARTER

woman having the requisite fame, popularity or glamor has not appeared on the horizon to provide the necessary impetus!

It has been sixty-six years since the telephone was invented and about thirty-seven years since the three element vacuum tube (audion) was introduced. Yet significant development has taken place in the hearing aid field, and when its growth is compared to that of the optical field—at least five hundred years old—the progress has been phenomenal. Indeed, the manufacturers and their research laboratory staffs are to be congratulated for the remarkable advance that has already been achieved. A small vacuum tube hearing aid is essentially a midget radio. Just after World War I, a head set radio, consisting of a heavy 6 volt storage battery, amplifier and detector, head receiver, and B batteries, weighed as much as 25 to 30 pounds and occupied a volume of two to three cubic feet. Research and refinement in technical skill have compressed the amplifier into a space a little larger than a woman's compact case, and the batteries are small enough to be carried conveniently in one's pocket! All this has been achieved in twenty years. Similar progress has been made in the art of fitting a hearing aid to match the particular loss of hearing; there is still much to be achieved, and, no doubt, these improvements will come in time. The hearing aid of today is not the ultimate in hearing aids. Until science and technology have advanced in this field, however, the present day aid is the best that can be had; every hard of hearing person needing one should be fitted and should learn to use it.

It is understandable that a hard of hearing person not accustomed to a hearing aid finds it disturbing and inconvenient to wear at first. Literally, he must learn to use it. Becoming accustomed to a hearing aid is more difficult than becoming accustomed to bifocal lenses. The acuteness of hearing enjoyed by the normal person is not fully recovered. The hard of hearing look for this youthful keenness to return, but it is not completely restored. Then, too, wearers of hearing aids must carry with them a battery, a tiny amplifier, a microphone and a receiver—all weighing slightly less than a pound, and they are also obliged to adjust the control of the instrument now and then to accommodate for differences in intensity of sound. Unlike spectacles, which last, barring accident, until the wearer requires a change of prescription, the upkeep of a hearing aid may amount to as much as $3 or $4 a month, and the initial expense of a hearing aid at present is about five times that of glasses. Some hard of hearing people feel that the instrument, when being used, costs too much to operate for the value received, *(Continued on page 207)*



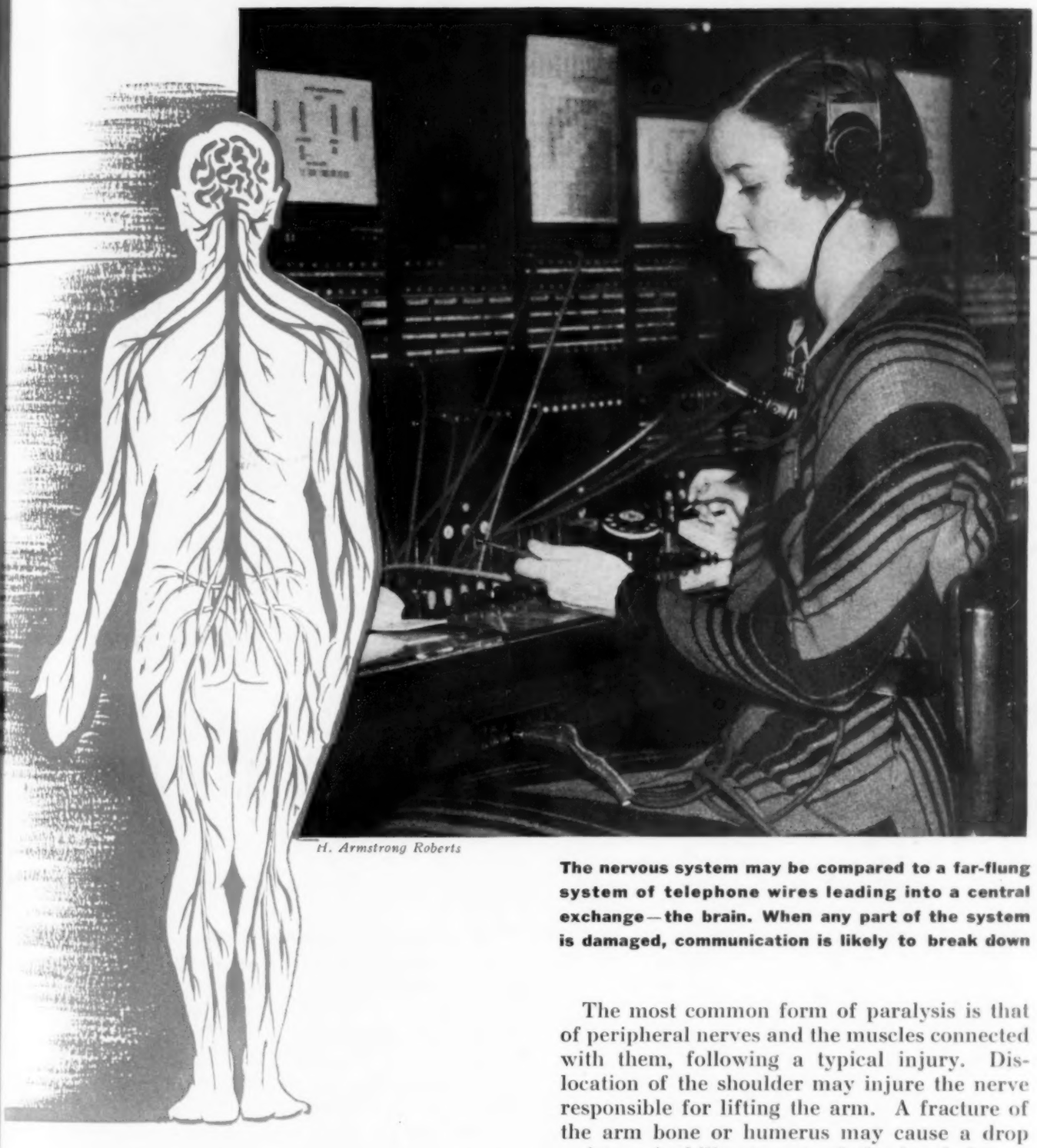
By RICHARD KOVACS

TO BE SUDDENLY deprived of the ability to use our limbs freely is one of the great tragedies of life. Either disease or injury may bring about paralysis, or loss of function in one muscle or a group of muscles. Because of the many forms and the varied origin of paralysis there is much misapprehension about it. The most common notion is that all forms of paralysis are incurable. This is far from the truth. The progress of medicine and surgery in recent years has not only done much to diminish the causes leading to paralysis but also has taught to minimize the damage wrought by it and to speed up recovery of its victims.

The normal function of a muscle depends chiefly on the undisturbed function of its nerve. Perhaps the simplest way to explain paralysis is to compare the disabilities of muscles and nerves to those likely to occur in a telephone system. A telephone may be out of order because the instrument itself has been damaged or the wire from the local exchange has been interrupted, or because the local exchange has been destroyed, or the trunk lines to the central exchange have been injured, or, finally, because the main exchange itself is in trouble. A muscle may not function because it has been damaged by injury or inflammation; or because the nerve leading to it from the local exchange, the spinal cord, has been cut or inflamed as in the case of nerve injury and neuritis; or the spinal cord itself may be injured or diseased—as occurs in infantile paralysis; or the main nerve bundles from the brain to the spinal cord may be affected; or, finally, the brain itself may be damaged. Naturally, only the principal forms of paralysis can be discussed within the limits of this presentation.

It is evident that the outlook for recovery in any form of paralysis depends on the possibility of eliminating its cause and on the repair of the damage in the sensitive parts of the nervous system. Under normal conditions certain groups of nerve cells, known as motor centers and located in the upper layers of the brain and in the spinal cord, send impulses for action to the muscles along a path consisting of nerve fibers, nerve trunks and single nerves. When these nerve centers are destroyed by disease or injury, the function associated with them usually becomes permanently lost.

Fortunately, however, they are often only temporarily disturbed by pressure or inflammation. In this case natural recovery or appro-



H. Armstrong Roberts

The nervous system may be compared to a far-flung system of telephone wires leading into a central exchange—the brain. When any part of the system is damaged, communication is likely to break down

priate treatment may return the function just as a telephone exchange may work again after a short circuit. In the event of the disturbance of the conducting nerve fibers only, the outlook for full recovery is even more favorable, because they have a natural tendency to regrow under skilful treatment and in case of partial destruction nerve suture will greatly promote the natural healing process.

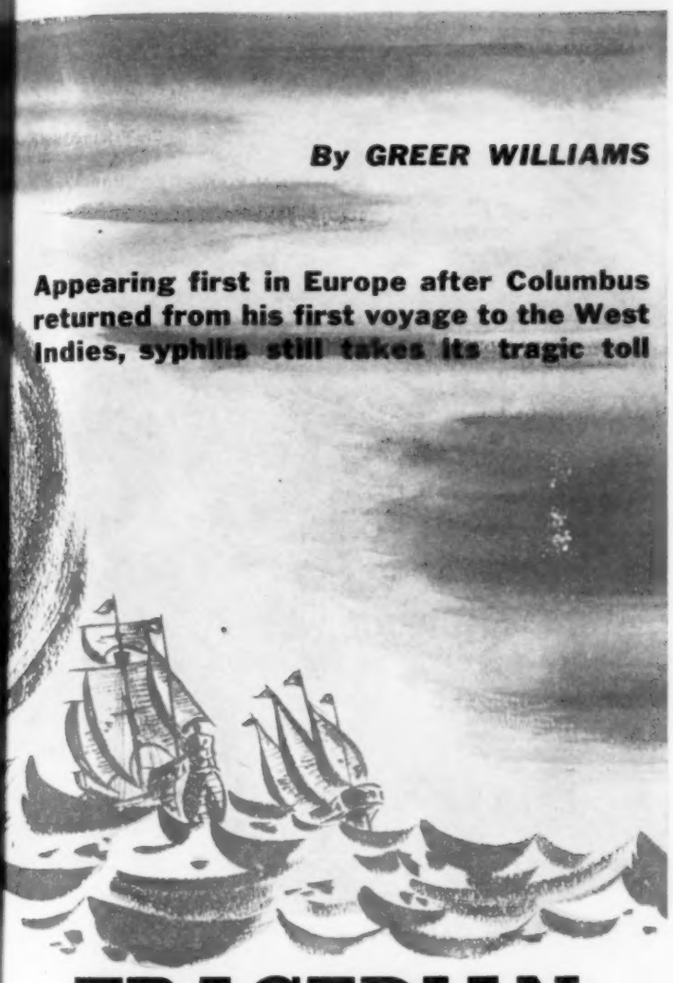
The most common form of paralysis is that of peripheral nerves and the muscles connected with them, following a typical injury. Dislocation of the shoulder may injure the nerve responsible for lifting the arm. A fracture of the arm bone or humerus may cause a drop wrist or inability to extend the hand due to injury to the nerve winding round the arm bone. Lead or alcohol poisoning may also affect this nerve and thus cause drop wrist. A blow to the knee may injure a nerve on the side of the knee and in turn cause drop foot or inability properly to lift the foot off the ground. In these peripheral nerve affections first the existing medical or surgical condition must be treated; next the weak *(Continued on page 231)*

Syphilis—THE GREAT

BLOOD TESTS on men examined for Selective Service show that 47 in every 1,000 are positive for syphilis. From this, United States Public Health Service statisticians estimate that the disease is present in 24 of every 1,000 Americans, the general rate being lower because syphilis incidence reaches its peak in young adults of draft age. The number of new infections occurring each year is estimated at nearly 200,000; the total accumulation in the population, at more than 3,000,000. Thus the evidence is abundant that syphilis, the historic plague of kings and knaves, still plays the role of great tragedian among the diseases of man.

Before Surgeon General Thomas Parran of the Public Health Service began a public campaign against syphilis in 1936, one scarcely ever saw the word in popular magazines and newspapers. Then came wide and rapid recognition that failure to talk about syphilis was symptomatic of our failure to eradicate the disease with the tools medical science had provided. Today, there is little public resistance to the definite strides being made under the $12,000,000 a year National Venereal Disease Control Program.

Yet, public education is such a slow process that the average man or woman who may acquire syphilis still has no intelligent understanding of its nature. While most people have heard about the antisyphilis campaign, the majority probably still regard the disease as unpleasant to talk about and a social calamity to have. The ancient feeling that venereal disease is indecent continues to persist in moderns. The reason, of course, is its association with sex and consequently with sin. Cancer



By GREER WILLIAMS

Appearing first in Europe after Columbus returned from his first voyage to the West Indies, syphilis still takes its tragic toll

TRAGEDIAN

and tuberculosis, like syphilis, present terrifying pictures to the lay mind, but, in comparison, they are socially respectable because they carry no sex-sin stigma.

The history of venereal disease—which at times has altered the course of all history—shows that its penalties have not prevented its spread. Social hygiene finds virtue an unwilling servant. There is, moreover, no justice in a concept which accepts punishment of the innocent, for example, where a man guilty of misconduct infects his wife and she transmits the disease to her child.

For hygienic and eugenic reasons, medical science, like morality, opposes promiscuity. The physician's first responsibility is to combat disease. Witnessing the wrecking of not only bodies but homes and happiness by a sex-borne disease, and also the social and economic damage it does to his community, he admits that the mode of transmission complicates the problem but not that it alters the necessity of attack. For him, the point where a disease enters the body is an accident of biology.

Syphilis made a dramatic entrance into the western world. The majority of medical authorities believe that it first appeared in Europe after Christopher Columbus returned in 1493 from his first voyage to the West Indies. Columbus' sailors were presumably infected by Indian women and, on their return, spread the disease in Portugal and Spain and throughout the continent.

The medical history of syphilis literally began on the dock at Lisbon where the physician, Dias de Isla, treated several of Columbus' crew for a "serpentine disease," as he described it. Columbus himself died perhaps of paresis, or syphilis of the brain. This could have caused the disordered actions which, it seems probable, were responsible for his final return from the Indies in chains.

Following 1493 syphilis spread at a wildfire pace through Europeans, who had none of the partial immunity which now exists. Today, the early symptoms of syphilis are minimal and its destructive course gradual compared to the violent plague at the end of the fifteenth century. Then, for the first time, definite descriptions of the disease began to appear in medical literature.

The word *syphilis* was introduced in 1530 when an Italian physician, Fracastoro, published an allegorical poem in Latin entitled, "Syphilis, the French Disease." The derivation of the word is uncertain, some authorities claiming that it comes from the Greek *swine* plus *lover*, and others maintaining that it combines *together* with *love*. In any event, Fracastoro named the disease after "Syphilus," the West Indian shepherd in his poem who was stricken by the gods with a disfiguring disease.

The advent of syphilis was a stimulus to medical thought. It has been said that the growth of syphilology epitomizes the development of all medical science. An understanding of syphilis necessitates the study of other disease and vice versa because syphilis is, in its various stages, "The Great Imitator."

Although physicians learned most of the classic characteristics of the disease in the 400 years after Columbus, they knew neither cause nor cure. Development of better methods of diagnosis and *(Continued on page 209)*

By HERMAN GOODMAN

PERSPIRATION comes from glands or little sacs covering the body; millions of these over every part of the skin secrete perspiration—a product of transfer from the blood elements. Independently of this sweat apparatus, the body surface exudes water all the time, the amount depending on the water content of the skin, the protein content of the skin and the permeability of the blood capillaries.

Fluid passing directly through the skin independently of the sweat apparatus is considered "insensible perspiration." About one-fourth of the water lost from the body is through insensible perspiration. It has been estimated that from 10 to 20 ounces of water pass through the skin daily as insensible perspiration. The water of insensible perspiration evaporates as fast as it is formed. The presence of insensible perspiration is claimed to prove the permeability of the skin from within. This loss of water directly through the skin is independent of the temperature, air circulation, clothing, or covering. Perspiration on exercise or exposure to heat takes place through the sweat gland apparatus, changing from the insensible or unnoticed variety to the "sensible" or noticed variety. When this occurs, the amount of perspiration is increased beyond the speed at which it is evaporated. The reason we perspire more in summer than in winter is that these sweat glands act as a means of cooling the body. The removal of fluid from the body cools it, just as you blow on a spoonful of hot soup to cool it by evaporation. Since the body is cooled by removal of the fluid from its surface, the activity of the sweat glands increases in hot weather in an effort to provide relief for the body.

Certain parts of the body perspire more freely than other parts, and the character of the perspiration varies on certain parts of the body and on others. For example, it is well known that when you are about to propose or ask the boss for an increase the palms perspire freely! People often say their hands become wet under conditions of stress. Years ago, as a matter of fact, this phenomenon was utilized as a form of trial. The accused person was offered the opportunity of immersing his hand into a pot of hot lead, for example. If he was innocent it was claimed that the hot lead would not injure his hand. The idea behind this is simply explained: the innocent person would perspire so freely that the layer of perspiration would act to protect his hand from the hot lead. The guilty person, according to this theory, would have more control and would therefore be injured. In the dark ages, it was already understood that perspiration on the palm is entirely different from the perspiration

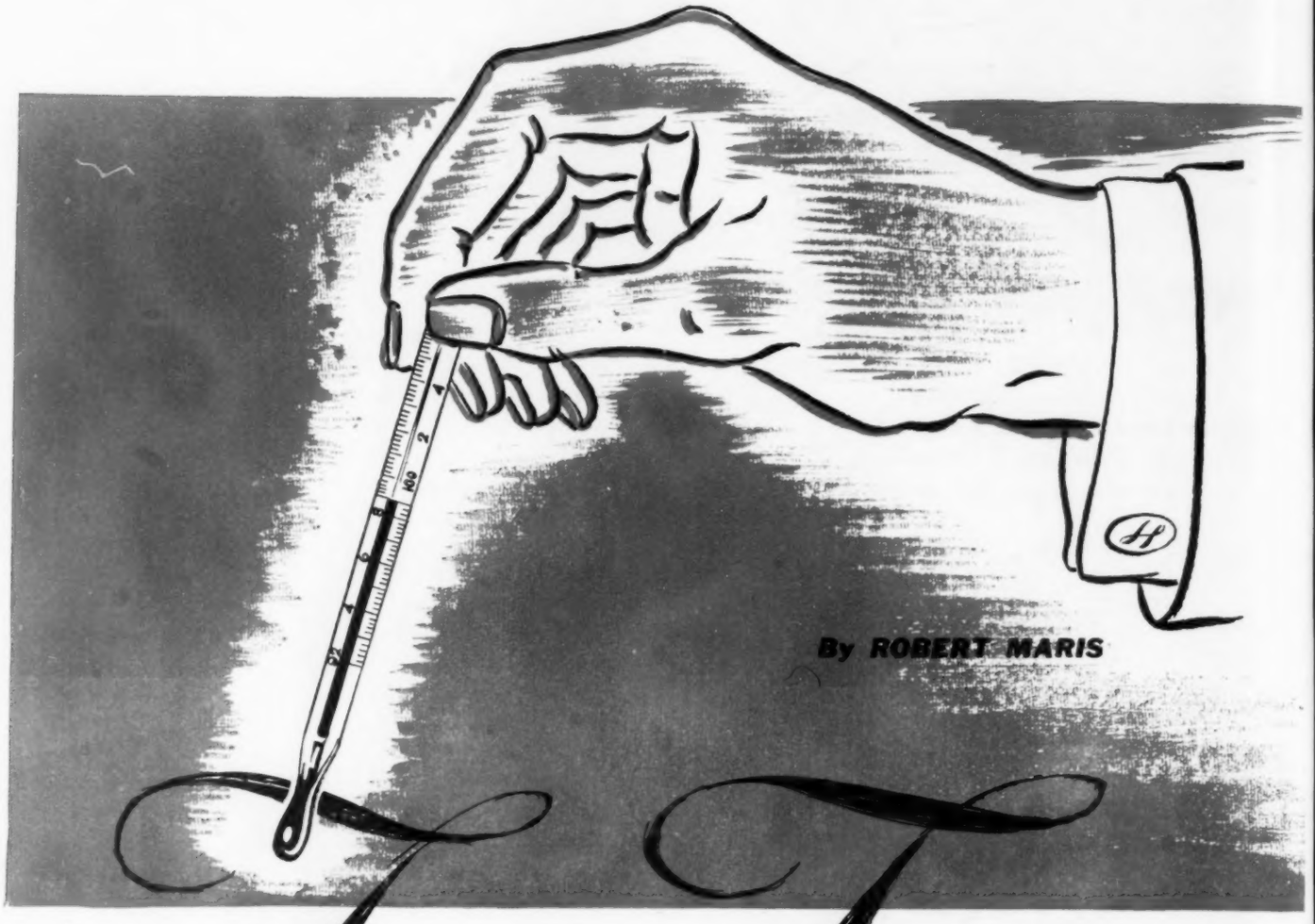
Certain parts of the body perspire more freely than others. Emotional stress may add excess perspiration

elsewhere on the body surfaces. It was recognized even in those days that perspiration of the palm was under control of the sympathetic nervous system.

The type of perspiration for which most information is sought is the specialized type—under the arm, for example. This type of perspiration involves a special form of gland—a cross or combination of the ordinary sweat gland and the type of sebaceous gland occurring around the hair follicles. Excessive or malodorous perspiration from under the arms is ordinarily absent in childhood. Complaints of excessive perspiration come with adolescence and the appearance of hair under the arm. The normal or ordinary small perspiration gland present on all parts of the body secretes a watery fluid. The sacs, or fat glands, on the other hand, produce the sebum from the sebaceous glands around the hair. This is a deterioration product. Under the arm, in certain physiologic states, this deterioration product has a tendency to deteriorate further. The breakdown results in a modified fat, or sebum, and gives rise to the odor.

What can be done through personal hygiene to relieve the person complaining of excessive or odorous perspiration? The United States Food and Drug Administration and the Federal Trade Commission have repeatedly reviewed methods of reducing perspiration. The Food and Drug Administration has classified antiperspirants as drugs and requires that the name of the active ingredients must be placed on the label of the container. Advertisements claiming that *(Continued on page 221)*

Most people seek advice about a special type of perspiration—under the arms



Fever Finders

By ROBERT MARIS

THEY LAUGHED at James Currie when he claimed that his observations with the clinical thermometer, a clumsy, foot long instrument, were important in the diagnosis and treatment of disease, but Currie and the fanatics who preceded him would have the last laugh today if they'd lived to see the thermometer become by all odds the first choice among diagnostic tools—the one that is used in nearly every illness! Contemporary physicians on the continent raised their eyebrows at Currie in 1797 and told one another that this lunacy on the part of an otherwise sound practitioner was just another instance of the backward state of medical practice in England; these critics are no doubt blushing in their graves as the manufacture of clinical thermometers becomes a million dollar business and some 2,000,000 temperature observations are taken daily in American hospitals alone!

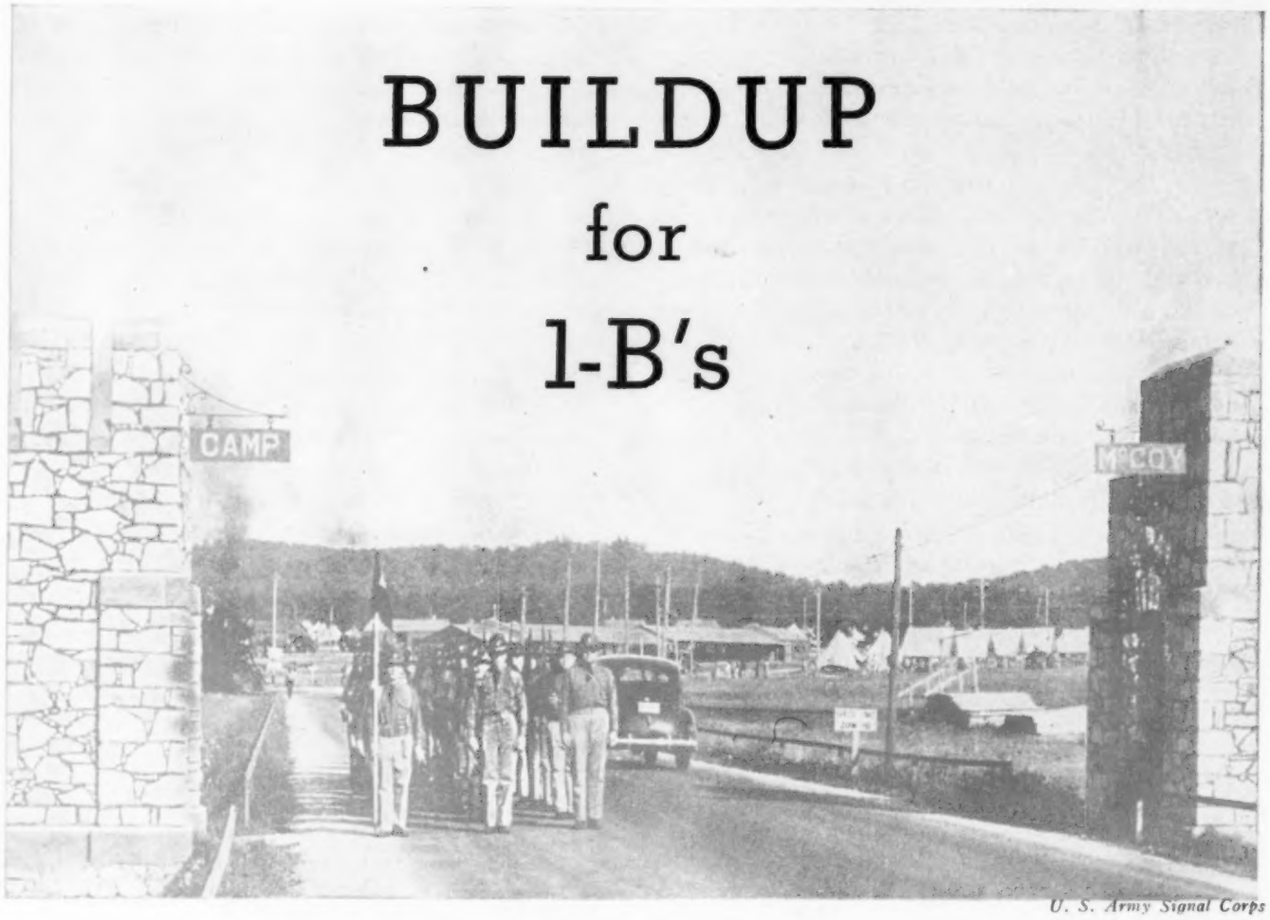
First to claim enough attention for his pet instrument to make himself the butt of professional jokes which were written into medical history, Currie was by no means the original thermometer man. The proper disposition of that honor has always been a controversial point; it is claimed alike for Sanctorius of Padua, Galileo, and Paoli Sarpi,

the Venetian sage. Those who boost Sanctorius strengthen their position by pointing out that followers of both other candidates are under suspicion of automatically attributing every achievement of the period to their own particular favorite. Whatever the score between individuals, it is clear that thermometers did exist in the 1590's. Sanctorius even stated that he could determine variations in the temperature of the human body during the course of certain recognized fevers; since his thermometer registered only by the action of atmospheric pressure as air in the bulb was warmed or cooled, it is doubtful that such variations could have been recorded with enough accuracy to have any clinical significance.

A hundred years later, Sir Isaac Newton, working with a thermometer which registered by the expansion of fluid within a sealed tube, was unquestionably taking specific temperature observations. That the degree of specificity in Newton's day was somewhat less exacting than in our own is apparent from his conclusion that the temperature of the human body "may be calculated as coming at a definite point between the temperature of thawing snow and the heat of water boiling strongly." Not a spectacular disclosure, perhaps, even in Newton's time, but at least he could prove it. Newton used linseed oil in his thermometers, because, he said, he had found it "capable of a considerable rarefaction and not having been observed to freeze even in very great colds and able to bear a great heat without boiling." For pretty much the same reasons, mercury became the preferred thermometer fluid within a few years after Newton's experiments.

Think of thermometers today and you think of Fahrenheit, whose name is on most of those in use outside scientific laboratories. Fahrenheit's contribution can be compared nicely to that of the substitute who comes into the game to kick the winning field goal and retires immediately to the bench for the remainder of the contest. It was simple, effortless and tremendously important. Fahrenheit's scale, devised early in the eighteenth century, provided the foundation on which all later experiments in thermometry were based; before his time it had been impossible to compare observations taken with more than one instrument. Taking the temperature of the human body as his starting point, he marked a scale on his thermometer up and down from a recording in boiling water to one in a mixture of ice and salt. Originally, he gave the entire span only 53 degrees, but later he multiplied by four to provide for greater accuracy in his readings. The human body landed at 96 degrees on Fahrenheit's scale. It was the custom at that time to measure the temperature by holding the bulb of the thermometer under the armpit, where the heat is from two to three degrees lower than it is in the mouth. If it weren't for Fahrenheit's decision to multiply, our familiar 98.6° would be 24.6°, and galoshes and mufflers would go on time-and-a-half at 8° instead of 32°. After Fahrenheit's death, the freezing and boiling points of water were widely adopted as convenient terminals for thermometer scales. The difficulty of working with small degrees and a zero below the freezing point, however, soon led to the development of the 1 to 100, or centigrade, system. Because of its greater arithmetic simplicity, this is used for most scientific work outside the medical profession, which stuck with Fahrenheit because the smaller degrees are handier for recording slight variations within the range of clinical observations. *(Continued on page 236)*

BUILDUP for 1-B's



U. S. Army Signal Corps

By WILL O'NEIL

THE SERGEANT was big and tough in the regular Army tradition. He was more than a little puzzled about the latest goings on in the United States military forces.

"This gang comes into camp just when we need some KP's," he said. "In fact, if they hadn't come when they did I would have been in the kitchen myself. So we tell off the first eight men in line to report to the cook. I go in a while later to see how they're doin' and then I take a second look. Those eight guys has only got nine eyes among 'em. What's this Army coming to, with guys like that?"

The new KP's were limited service men. The Army began taking men with physical defects that render them unfit for service in the combat branches last August. Although the majority of them do have eye defects, the number of those who have only one eye is relatively small.

They have released thousands of more able bodied men for the shooting work of the Army, and their contributions to the success of the Army are by no means limited to kitchen service. Although not classified as combat troops, many of them are going across the seas with their outfits to serve in areas where the action is hottest. Others are remaining behind in jobs at posts and camps throughout the nation.

Instead of the thirteen weeks of rugged basic training given general service men immediately after their induction into uniform, the limited service men are given a month's condensed but intensive introduction to the Army. The pattern for this introductory course, according to Maj. Gen. H. S. Aurand, commanding the Sixth Service Command, has been established at Camp McCoy, Wis.

When the first of the limited service men began to trickle into McCoy last August the camp's operations officer, Maj. William Lutz Krigbaum, who looks like Captain Flagg and sounds like a college professor, was told to take charge of them.

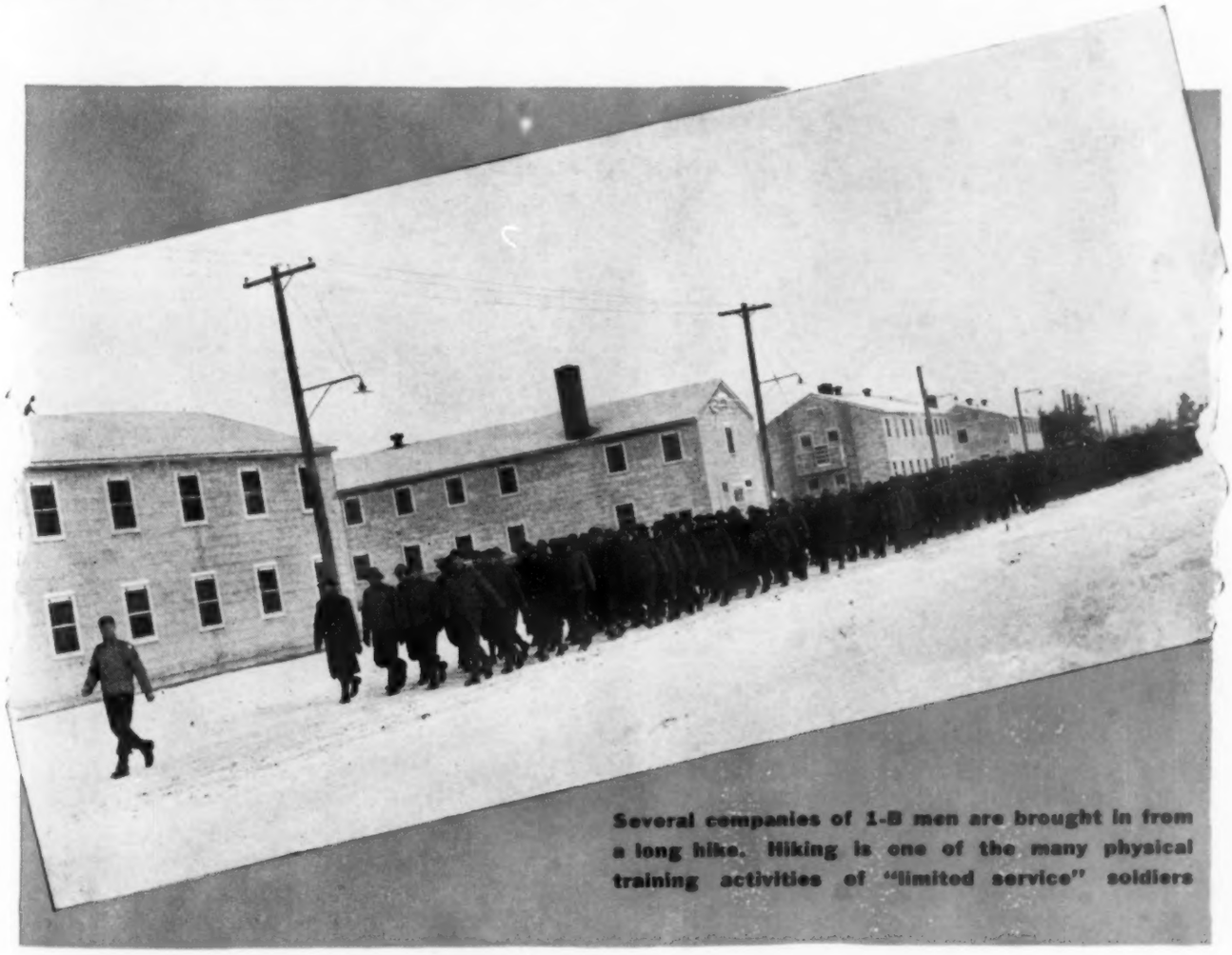
The outfit under Maj. Krigbaum went down on the Army records as the Limited Service

School. Both men and officers, however, refer to it as Krigbaum's College of Military Knowledge. The school in its first month of operation handled less than two hundred men. Now it receives and discharges a thousand men a week, each of the graduates having been given a carefully planned, twenty-eight day program of training that fits him for immediate duty. The Army faces a dual problem in preparing the limited service men for active service. One side of the problem is the actual physical defect, or defects, of each man, and the other is the psychologic barrier to a feeling of full participation in Army activity caused by the defect.

About 65 per cent of the men going through the school were rejected for general military service because of poor eyesight. They have from one tenth to one twentieth of normal vision, or they have only one eye. The great number of men wearing glasses is one of the noticeable features of the troops in the camp.

Only a small number of the men with eye defects can be reclassified for general service by the school's doctors. Every man is given a re-examination, however, and his glasses are checked against the findings of this test. Lenses which are not correct are changed without charge. Those who need glasses and do not have any of their own are provided with them.

Maj. Krigbaum is proud of the fact that 16 per cent of all the men who have physical defects other than those of the eyes have been "reclaimed," as he puts it, for general military service. Re-examinations of the limiting defects and revaluation of the extent to which the defect renders each man unfit for combat duty occur at the end of the third week of the school course. The re-examination and revaluation are done by a board of Army doctors. They receive assistance in evaluating the workabilities of doubtful men from an officer who is an expert in Army personnel placement. The men who pass before this board have been classified for limited service because they are overweight or underweight, have missing fingers or slight deformities of the skeleton or extremities, are slightly crippled as the result

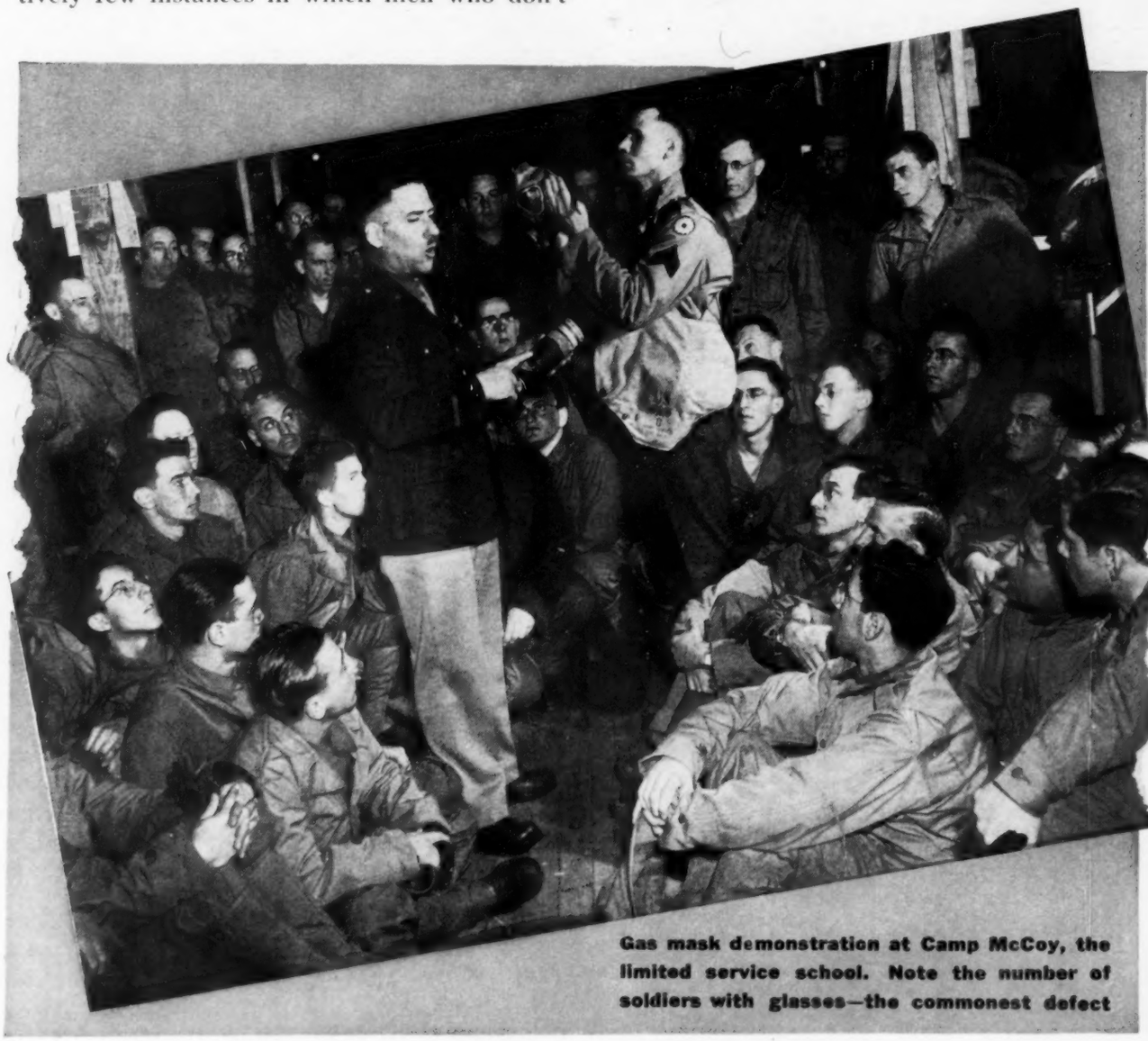


Several companies of 1-B men are brought in from a long hike. Hiking is one of the many physical training activities of "limited service" soldiers

of an old paralysis, have bad teeth, or have some other defect which does not bar them from service but does prevent their acceptance for combat duty.

The program of the school, from the physical standpoint, was designed to build up the condition of such men without imposing incapacitating strains on them. Whereas a recruit undergoing thirteen weeks of basic training for general service may spend several successive hours on the drill field or in combat exercises, the limited service men seldom do any physical activity for more than an hour or hour and a half at a time. Periods of drill are separated by lectures and other similar periods during which the men are seated. Men with the greatest handicaps are allowed to fall out of ranks even during this program if they become overtired and are unable to keep up. The school's officers have found comparatively few instances in which men who don't need it take advantage of this privilege. On the contrary, they say, nearly all the limited service men are so anxious to prove they can be good soldiers that they constantly seek work!

Illustrative of this attitude is an incident that occurred one cold day this winter. These soldiers have only one day on the rifle range during the stay in school, when each man fires thirty rounds. A company was kept off the range one bitter day by the cold. The next day was almost as cold. Maj. Krigbaum had just decided that the men should miss firing practice when the company's instructors reported to him. The instructors said the men were unanimous in offering to go without their dinner—the big meal of the day in the Army—if they could go out to the range during the warmest part of the day for the practice they were afraid they would miss! They were allowed to go.



Gas mask demonstration at Camp McCoy, the limited service school. Note the number of soldiers with glasses—the commonest defect

Maj. Krigbaum and Capt. C. H. Barlow plan the day's schedule. 1-B privates Lewis Kelly and Joseph Baker are taking notes

The school's program builds up men who underwent operations or were injured shortly before they were inducted into the Army. A good many men of this group have been reclassified for general service by the medical board. Bad teeth present no problem to the camp's dentists, who refit nearly all the men in this group for combat duty, even to the extent of full upper and lower plates. One of the largest groups of reclaimed men comes from those who entered the camp with too much or too little weight. Exercise wears the fat off—extra work is given when necessary—and it also causes underweight men to eat themselves into the general service classification. One man lost 37 pounds during the twenty-eight day program, while another, who was below the acceptable minimum weight limit when he entered the camp, gained 25 pounds and a reclassification. Men who succeed in obtaining reclassification on the basis of physical improvement present no psychologic problems. The mental stumbling blocks to Army progress that other men may have are removed, on the whole, by the instruction system and by careful placement of men leaving the school in functions for which they are suited.

The first morning new arrivals are in camp they are assembled in one of the new theaters, a thousand strong, and their program is outlined to them by Maj. Krigbaum.

"You are not here to be driven, but to learn," he tells them. "Your officers and instructors are here to lead you and instruct you."

The major does his best to see that these precepts are followed. *(Continued on page 200)*

DANGEROUS SPIDERS

By
RAYMOND W. THORP
and
WELDON D. WOODSON

MOST PEOPLE kill spiders on sight. If asked why, they may claim that the spider's eight legs, as it crawls, convey a sinister feeling. Or perhaps because some spiders spin untidy webs in the corners of rooms, housewives in general regard them with repugnance. Still another reason may be that the multitudes through the years have understood that there are a few spiders with a bite that may cause symptoms of pain in a human being, and, not being able to differentiate one species from another, they have condemned all.

Naturalists have long campaigned against this. They point out that spiders are harmless to man and that their spinning technic, as they weave their variously shaped webs, is an enticing procedure to observe. They explain that spiders have a utilitarian value in that their webs are employed for cross hairs in telescopic gun and bomb sights, rangefinders and optical instruments. At about the time of the Civil War, and for several decades thereafter, efforts were made both in the United States and France to utilize the spider's silk, and some fabrics were actually woven. These ventures proved impractical, however, for commercial purposes. The nature student closes his argument in defense of spiders by asserting that for their food they prey on insects, many of which are injurious to plants and man, and they help in this way to balance nature.

Scientific investigation reveals that the public errs in being shy of all spiders, and that the naturalist, on the other hand, makes a mistake in lending the impression that no spider should be feared. It will be helpful, therefore, to throw the searchlight on those few spiders with a bite that may result in considerable pain to man, and particularly on one genus whose members have brought great suffering to humankind on every continent.

The so-called "banana" spider has often been singled out as a creature with a bite that may induce pain in man. It is a tropical species which appears in the United States hidden in bunches of bananas. Newspapers at times relate incidents in which an unsuspecting person comes in contact with it and is bitten. The accounts almost invariably designate the offender as a "tarantula." In reality, though,

the creature is not related to the large, hairy spiders of southwestern United States termed "tarantulas." It is instead one of the giant crab spiders and belongs to the family *Heteropodidae*. It is comparable in size to a few of the smaller specimens of tarantulas, and, due to the fact that its eight long legs extend laterally from the body, it seems to be a veritable mammoth in the spider world. There are a number of case histories of bites of this species on record. One patient tells of his having been bitten accidentally by a banana spider, *Heteropoda venatoria*. "My finger was swollen to twice its natural size within two minutes," he states. "Sharp pains were felt to my shoulder. This pain and swelling lasted for about two hours. No ill effects." Other case histories have shown similar effects. The clinical findings indicate that the bite of this spider may be sharply painful but not dangerous.

In Australia there are two species of spiders which have a bite that may cause intense suffering and, under certain conditions, possibly death. These are technically known as *Atrax formidabilis* and *Atrax robustus*, and popularly as trapdoor spiders. This last is misleading, however, for in reality these spiders build a funnel-shaped nest and are of the group classified as funnel-web spiders. *Atrax robustus* has an especially evil reputation. Excluding the legs, the female's body measures up to 1½ inches in length, and the male's 1 inch. Both sexes are ebony black, with the forepart of the body highly polished and glossy, while the soft abdomen is densely covered with a velvet pile. The under surface of the body bears tufts and brushes of grizzled red hair. There have been medical reports of patients who have recovered after being bitten, but only after severe, excruciating pain, and there are also on record a number of deaths attributed to the bite of this particular spider.

In South America a number of species of spiders have been identified as enemies of mankind in varying degrees. The most prominently mentioned are the *Theraphosides*, which are closely related to the tarantulas of the United States. They grow to be the largest of the world's spiders; some have bodies that attain a length of as much as 3½ inches. Numerous case histories of their bites are on record: severe local lesion, edema, paralysis, necrosis, anesthesia of the bitten member and other symptoms may follow the bite.

Spiders similar to these giants, which are commonly called ta- *(Continued on page 234)*

Most people kill spiders on sight. Yet only a few species are actually to be feared. One of these is the black widow

STREAMLINING

By HAROLD C. LUETH

WARFARE has become more mechanized, modernized and streamlined. Perhaps too little has been said about the accompanying modernization in care of the wounded, prevention of disease and physical betterment of the soldier. The progress that has been made by the medical and nursing professions in the care of the sick and wounded has kept pace with other war developments.

Military hospitals of the 1840's were, without exception, dirty, dingy buildings. Every one is familiar with the disorder, lack of supplies and filth that Florence Nightingale encountered at Scudari in 1854. Her sweeping reforms are equally well known.

At the beginning of the Civil War, our country was caught literally unprepared. Soldiers injured or wounded in battle lay unattended for long periods of time. Their ultimate fate depended on the humanitarian spirit of comrades, slightly wounded soldiers, camp followers or the overworked staff of the Regimental Surgeon and the providential chance of their propinquity. A wave of indignation swept the public as soon as accounts of the neglected wounded were known. At about this time, a group of citizens formed a committee which resolved to render such assistance as was possible by private means. Their efforts received hearty public approval; President Lincoln issued an executive order creating the Sanitary Commission and charging it with the responsibility of supplementing the efforts of the Medical Department of the Army in the care of sick and wounded soldiers. Throughout the war, the Commission did much to furnish necessary supplies, improve camp sanitation and life and

In the Solomons today, casualty stations are set up close to the fighting

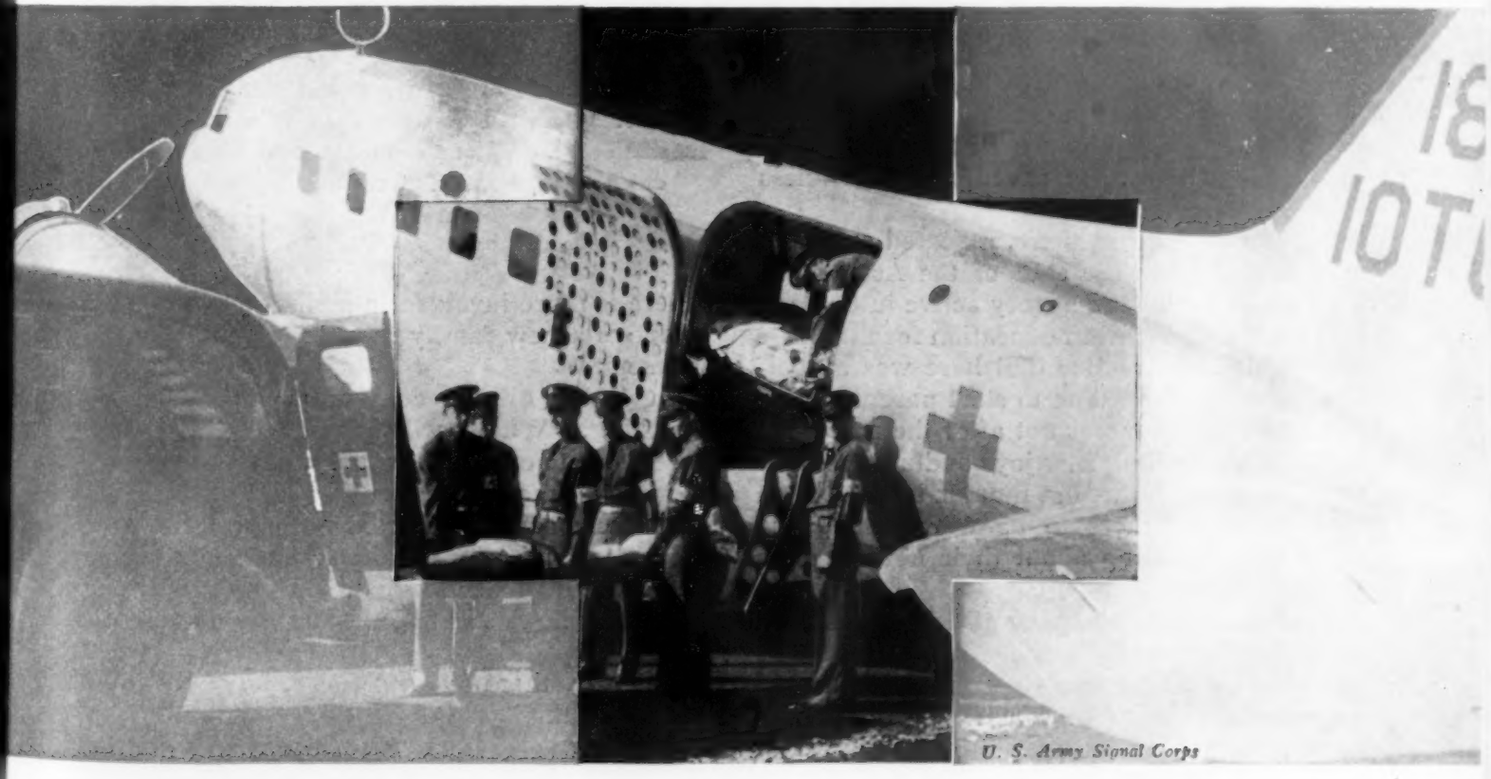
Military Medical Care

tremendously aid the wounded. All its efforts were supported by private subscription and the volunteer labors of patriotic citizens.

There were still ugly tales of neglect of the wounded and disorganization of effort. In July 1862, Dr. William H. Hammond was appointed Surgeon General, and he immediately began to remedy the defects. He reorganized the entire medical establishment and instituted important reforms. Among other far seeing plans, he envisioned an orderly means of evacuating wounded from the battle field. A few months later, he appointed the most talented officer in the Medical Department, Dr. Jonathan Lettermann, as Medical Director of the Army of the Potomac. The choice was fortuitous. Under Lettermann's supervision the Medical Department of the Army of the Potomac was soon well organized, well supplied and functioning smoothly. Less than a month after the appointment, Lettermann conceived a comprehensive, workable plan for the orderly evacuation of the wounded. Two hundred ambulances were used, and the work of the surgeons and their staffs was all nicely fitted to the constantly moving situation of an army in battle. On Sept. 17, 1862, the plan was given the acid test during the battle of Antietam, and it proved its worth. Within twenty-four hours after the cessation of hostilities, all wounded had been taken from the field of battle to hospitals and dressing stations or put under some form of shelter. The plan was so successful that it was quickly adopted by all the Armies of the United States; it was later used by practically all foreign armies, and, in fact, it still remains the basic principle of evacuation.

Under the stress of war Churches, halls and warehouses served as hospitals at that time. Miss Dorothea Dix, appointed by President Lincoln as superintendent of women nurses, was largely responsible for turning the dirty, filthy, blood stained *(Continued on page 216)*

Seriously wounded soldiers are given first aid and evacuated by airplane



U. S. Army Signal Corps

WHEN *Baby's on the Way*

By

EDITH G. NEISSER

The problem of the frustrated father is a modern one. When babies were born at home and Father was ordered up and down stairs with hot water and clean linen, he didn't feel like the forgotten man!

"IF I'D ONLY KNOWN what to expect of myself, I would never have gotten into such an irritable, nervous state after the baby came."

"I wish I had realized what a difference it makes when a baby comes into a family. I wouldn't have been so upset because my husband seemed actually to dislike the baby at first."

"I never had any idea it was so hard to find time for everything during a day. If I had known what was really necessary in caring for a baby, I could have saved myself endless worry."

Statements such as these, repeated over and over again, made the staff of the Association for Family Living, an agency active in Chicago and the Middle West in education for marriage and family life, realize that here was a challenging need. The time to start parent education, they decided, was not after the new baby has arrived, trailing new joys and new responsibilities in his wake, but months before, when mothers and fathers to be were setting the stage and dreaming about their new roles as parents.

True, the obstetrician cautions the mother about caring for her own health; the nurses in the hospital are instructive about baths and feedings for the baby; there are bulletins aplenty on managing a home efficiently. But there is more involved in getting off to a good start as a new family than just doing each of these jobs.

It is not even a case of putting all these together. Where will the new mother find some one to explain how to bathe a baby, make formulas, keep the house tidy against the visits of friends and in-laws, deal with their well meant advice and still be serene and cheery, able to make her husband feel that, baby or no baby, he is still a pretty important man in her life?

Clearly, there is need for preparental education in the business of day to day living with a newborn baby and for a recognition of the

fact that family life affects the newborn just as much as the ingredients in his bottle. To meet this need, the Association for Family Living several years ago initiated its course for expectant parents.

The story of this course, which has become a hardy and highly regarded perennial on the Association's program, is worth telling; if such a course met with a warm response in Chicago, where many educational resources are available to young parents, then smaller communities, less rich in opportunities for parent education, would find it even more warmly welcomed.

The enthusiastic interest of the doctors with whom plans were discussed confirmed our belief that such a course was scientifically sound, and the excellent publicity the newspapers gave us when we announced the course convinced us that there was a public for such material. Interestingly enough, our public throughout the years has proved to be not members or young friends of members of the Association for Family Living, but young women, alert and eager for information, who read about the course in the newspapers and came because "it sounded like something they had been looking for." One reason we never have had any difficulty in securing topnotch obstetricians and pediatricians to lecture is that they have found the expectant mothers an extremely responsive group to work with—something they, too, have been looking for, they say.

During the last four years, the course has varied considerably. Sometimes separate sessions were held for mothers and fathers, sometimes they met together. Last spring, to avoid transportation difficulties, a one day institute for expectant mothers was held; all the material of half a dozen meetings was packed into one six hour session, punctuated with glasses of tomato juice and short intermissions.

But each year the basic philosophy behind the course and the material covered are essentially the same. All along, the importance of relationships and the "whole family" point of view are stressed. What the new parents do or say isn't the whole story. How they do it and how they feel about the baby and each other is what creates the intangible atmosphere known as wholesome family life. The subject matter may be divided into four parts.

First of all, there is the mental hygiene aspect of pregnancy for both the father and the mother. Secondly, there is the matter of ways and means of taking care of the baby once he has arrived; how to keep him clean, comfortable and happy with a minimum of trouble to all concerned. Third, what can you expect of a baby in the way of development in the early months? What is a normal baby really like and how does he respond to those around him? Last, the place of each individual in the new family group is considered. This might be described as "What may the baby expect of his parents?"

An obstetrician with an interest in a mental hygiene approach has always been selected to deal with the first part. He undertakes to clear up the confusion between fact and old wives' tales. (*Old* wives' tale is literally true; it is the older women who build up a confinement into something pretty awful!) Most young women know little about the actual birth process, and accurate information does a great deal to dispel the fears bred of ignorance.

Expectant mothers are constantly told to take good care of themselves. But at what point does sensible care stop and coddling begin? That is a nice question which comes

Instead of busying himself with important tasks at the crucial moment today, Father frets away the time in a hospital waiting room. With this start, he needs help in adjusting to the new baby!

Roy Pinney

Wholesome family life doesn't just happen—rather, it is the sum of the interrelationships of all the members of the family. An understanding of these relationships is often necessary to family happiness

in for discussion too. For the normal young woman, pregnancy can be an adventure. While we never have gone so far as to entitle these meetings "How to be happy while pregnant," that has sometimes seemed to be the underlying theme. The mothers to be gain an insight into their own behavior and are helped to a better understanding of themselves by the discussion of how women react to those around them, especially their husbands, at such a time.

The year that a separate course was held for fathers, their questions showed clearly that they had perplexities of their own ranging all the way from such superficial matters as "Does the mother ever regain her own figure?" to the causes of miscarriage and the merits of breast vs. bottle feeding. With the fathers, the mental hygiene aspect of pregnancy resolved itself around the question, "Is a pregnant woman difficult to live with, and why?" Though it might appear that here, at least, the fathers to be would know all the answers, it was news to them to learn that at just about the time in the course of a pregnancy that the husband gets over his original solicitude and decides that his wife is going to get along all right after all, the moment has arrived when the wife begins to be deeply concerned about losing her attractiveness and somewhat worried about what lies ahead of her. When she finds her extraordinarily attentive spouse becoming rather casual *(Continued on page 222)*

Meat

and your wartime meals

IN ORGANIZING your wartime meals, keep in mind what good nutrition demands. It is doubly important now when men and women are called upon to put forth the effort which all-out war demands, when every child represents a part of that precious future for which the American way of life must be preserved.

Good nutrition calls for an ample number of calories and for an adequate amount of proteins, vitamins, and minerals. Keep in mind how richly meat contributes of these essentials.

Meat is probably the outstanding everyday source of biologically adequate protein. Its content of B vitamins (thiamine, riboflavin, niacin) and of important minerals (iron, copper, phosphorus) is notably high. Even a small amount of meat makes a big contribution to the daily requirement.

But good nutrition depends upon more than merely nutrients. It depends on appetite, too. Without appetite there cannot be good nutrition, and unless meals are tempting, appetite goes out of the window.

This is the plus-value in meat—in every cut and every kind of it: that grand meat flavor. It is the spark plug of American appetites. It makes the simplest meal a rich repast. When the aroma of meat drifts from the kitchen, men look up from their papers, children ask "when do we eat?" and appetite comes galloping.

So use your meat wisely. Stretch its flavor over other foods, and they gain new appetite value. Even a small amount goes far when you combine it with cereals, with macaroni, spaghetti, and noodles, vegetables and dressings.

Talk to your meat man, ask him what cuts he has today, and how to use them. He knows the plus-value of meat and how to lend its appetite appeal to wartime meals.

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The Seal of Acceptance denotes that the statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

American Meat Institute

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Man power plus!

QUIETLY, modestly, over the past years medical science has been producing virtual miracles—miracles which are paying our country handsome dividends as time goes on . . .

DIVIDENDS IN MAN POWER.

Today, literally millions of people who are lending their services to Uncle Sam would not be alive but for these discoveries of medical science.

In the 75 years since March 24, 1868, when the Metropolitan Life Insurance Company was founded, the average length of life of Americans has increased from about 40 years to more than 60 years. Figures indicate that about 2½ million men of military age owe their existence today to improvements in mortality since the turn of the century.

Throughout its 75 years of life, Metropolitan has been glad of the opportunity to take an increasingly active part in this drama of conserving human lives.

As far back as 1871, the Company issued "Health Hints," the first of more than a *billion* booklets on health subjects which are distributed at the rate of one every fifteen seconds.

In 1892 it began its co-operative work with the public health forces of the country by joining government officials in a campaign against cholera. This was the forerunner of numerous campaigns against such diseases as tuberculosis, typhoid fever, diphtheria, pneumonia and others.

In 1909, the Company set up a special department to place its rapidly expanding public health work on an organized basis. Among its many activities, for example, is a Nursing Service, started in 1909, which has since expanded to cover the United States and Canada. Last year nearly three million visits were made to eligible Metropolitan policyholders.

Today Metropolitan works closely with health agencies, both private and public, and carries out or assists important health research. Through its health booklets, its far-flung nursing service, its health advertising, and similar activities, Metropolitan consistently pursues its policy of passing life-saving knowledge of medical science on to the people in words they can understand.

On this, our 75th Anniversary, our eyes are on the future, rather than the past. For there is so much more to be done. As new triumphs of medical science are unfolded, Metropolitan will play its part in carrying life-giving knowledge to the people.

75th ANNIVERSARY—1868-1943

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(A MUTUAL COMPANY)

Frederick H. Ecker,
CHAIRMAN OF THE BOARD

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1 MADISON AVENUE, NEW YORK, N. Y.

Buildup for I-B's

(Continued from page 191)

He has only a small staff of officers, most of the instruction work being done by carefully selected noncoms and by men trained in the school itself. The major and noncoms agree that the school wouldn't work if it were not for the enthusiastic efforts of the instructors.

Some old line Army men have been shocked to find that the instructors take the trouble to explain, rather than resort to harsh language as a means of getting obedience. The officers and instructors appear to be making a strenuous effort to apply the Golden Rule to the Army. This system, somewhat strange to the Army, was instituted by Maj. Krigbaum because he believed that browbeating and harsh disciplinary methods would serve to intensify any inferiority feelings among men labeled as unfit for shooting service. He has the notion that the way to build morale is to build up the pride of the men in themselves and the Army. The men know from experience that the major and his staff can be tough when they need to be, but the need seldom arises under his system.

Despite the fact that nearly 10,000 men had passed through or were in the camp up to the time this was written, there had never been a man A.W.O.L., nor had there been any need for a court martial. That alone, says Maj. Krigbaum, is the answer to whether or not his system works.

The final step in this process is that of fitting the man into the job that he can do best. Although the combat branches, such as the infantry, artillery, cavalry, tank corps and so on, are closed to the limited service men, they are sent into all of the noncombat branches. These include the corps of engineers, quartermaster corps, signal corps, medical corps, ordnance, military police and clerical and technical work of all types with headquarters detachments.

Since the Army has no use for all the skills and abilities used in civilian life by either general or limited service men, not all of the men can be given jobs of the type they held before entering the Army. But where the Army can make use of a man's skill or training from

civilian life it is more than anxious to do so. Personnel experts at the school study the data compiled on every soldier at reception centers. When it is necessary, the limited service men are interviewed again as to their job capabilities. The importance of the work they are to do, whether it be laborer in a quartermaster warehouse, orderly in a hospital, technician for the engineers, driving a truck or keeping financial records, is impressed on the men. Men with the requisite ability and qualities of leadership are given the opportunity to move on to officer training schools and commissions.

In some cases, the physicians and personnel experts join hands in the reclaiming work. A case in point involved a young man who had no major physical defect, but who complained that his flat feet prevented him from full participation even in the limited physical activity program of the school. The doctors decided the man's trouble was part physical and part psychologic.

The soldier had worked in a railroad roundhouse as a civilian. He told the personnel officer that he was anxious to serve in one of the Army's special railroad outfits. The officer replied that he would be glad to help him get into such an outfit, but that he would have to get a medical reclassification for general service before he could be assigned to such duty. The man thereupon improved both physically and psychologically and got his reclassification!

The limited service men, those who remain in the classification and those who can be reclaimed for general service, are important to the Army's effort to make every able bodied man in the nation available for combat duty. Krigbaum's College is turning out men every week who are glad of the opportunity to serve, who know they have a real duty to perform and who are anxious to show the rest of the Army that they can and will do their part.

Anxious mother: "Come quick, Doctor. Baby's swallowed a fountain pen!"

Doctor: "I'll be right over."

Mother: "But what shall I do until you get here?"

Doctor: "Guess you'll have to use a pencil."

ARE YOU SURE OF YOUR PRESENT DEODORANT? TEST IT! PUT IT UNDER THIS ARM!
PUT FRESH #2 THE NEW DOUBLE-DUTY CREAM UNDER THIS ARM! SEE WHICH STOPS PERSPIRATION-PREVENTS ODOR BETTER!

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FRESH #2

NEW DOUBLE-DUTY CREAM • REALLY STOPS PERSPIRATION • PREVENTS ODOR

THE FOOD WE EAT—II

By MIRIAM ZELLER GROSS

Leading authorities on nutrition tell us how American families can stay well fed in spite of rationing and shortages—by utilizing foods which are generally overlooked or discarded

THE AMERICAN housewife's problem of feeding husband and children adequately while conserving food for other nations is one of the most complex jobs of the war—entailing the morale and nourishment of the home front plus the well-being of allies benefiting through the Lend Lease program.

Practical help is offered to women weary of dollar stretching and trying to provide necessary vitamins, minerals, proteins and other food essentials in articles by members of the Council on Foods and Nutrition, published in *The Journal* of the American Medical Association. Dr. Russell M. Wilder of the Mayo Clinic, together with Thomas E. Keyes, Clinic Reference Librarian, is one of the authors. He urges Americans to review their food habits, eliminate unsound food habits and practices, and make more economical use of milk, meats, fish, grains and vegetables as well as to cultivate some less known foods. Such procedure, he believes, will solve almost any nutrition problem the United States faces.

While government requirements make milk abuses difficult to correct for the duration, knowing of them should enable housewives to make better use of milk after the war. With unbelievable prodigality we have wasted about 50,000,000,000 pounds of skim milk a year, dumped millions of quarts of whey down the sewer and thrown away comparable amounts of buttermilk. Skim milk, with all the milk essentials except butter fat, has until recently been thrown away—or fed to animals, which is almost as wasteful, since it takes ten pounds of skim milk essentials to produce one pound of meat. Skim milk should have been marketed in powder form, enabling the housewife on a restricted budget to give her children their needed quart and adults their pint of milk daily. Powder skim milk would assist all of us to get our milk requirements painlessly, as it has a superior flavor in most cooking processes. Since it is

dry, the cook does not have to worry about adding too much liquid, so larger milk amounts can be added. Other than its lack of butter fat (made up by adding more butter to the diet or taking other fats and vitamin A from less expensive sources) dry skim milk's one drawback is that when reconstructed with water it is less palatable than liquid whole milk.

Milk drying equipment is not expensive in terms of pounds of finished product, but the initial cost represents a lot of money for most farmers and dairies. Too, skim milk collection is a problem. But such problems are solved when the farmer is paid a little more for milk, and the demand exists. This is proved by the dry skim milk produced since Lend Lease asked for it. Production in 1938 was twelve times that of 1921, and production since 1938 has increased by leaps and bounds. A few years ago the Borden Company developed a dried skim milk product which enabled the housewife to get the equivalent of five quarts of milk for 22 cents. But the Lend Lease program takes such products away from the American home for the duration. Lend Lease, together with the Army and Navy purchases, takes 90 per cent of our dairy products. Requirements for dry skim milk alone this year are 200,000,000 pounds. Despite stories to the contrary, the United States milk supply is on the upgrade. We produced between 115 and 116 billion pounds in 1941, will probably produce 120 billion in 1942, with equivalent or better figures for 1943, barring drought.

With cheese, the casein portion of milk, on the probable ration list, the housewife can do little about utilizing larger amounts of cheese. But, as in the case of dry skim milk, she can keep it in mind for meat stretching, menu economy and variety when food supplies return to normal. She may also consider powdered whey. Whey, left over from cheese manufacture, contains milk water together with most of its vitamins and minerals, also some of its protein. Some powdered whey is used in candy manufacture and poultry food, but more is thrown away. In 1941, when Lend Lease was calling for dairy prod-

WAR MEANS RATIONING

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Despite the shortages caused by war, there must be no shortage on proper nutrition or health.

The bakers of America feel proud that they are prepared to fill a vital war-time rôle . . . a rôle for which they have been preparing these many years.

For war time finds food stores supplied with enriched white bread—bread baked with good white wheat flour, to which has been added essential minerals and vitamins* to give it even more nutriment to sustain Americans through these long, hard days of gruelling work.

Enriched white bread is an *economical* source of food energy, too—a food that every family—in any income group—can enjoy without stint.

You will do your friends and associates a favor by telling them about enriched *white* bread.

* Thiamine, Niacin and Iron.

Department of Nutrition

American Institute of Baking

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THIS TOMATO JUICE IS NEVER THIN OR WATERY

High retention of nutritional values because made by patented process. The Sun-Rayed Co., Frankfort, Indiana.

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HERE'S an easy way to make milk, nature's most nearly perfect food, more readily digestible. Just add ½ "Junket" Rennet Tablet to a glass of milk, stir until dissolved, let stand 10 to 20 minutes, then drink. That's all.

When the milk reaches your stomach, the rennet causes it to form soft, fine, easily digested curds. This is the first step in digestion . . . and results are amazing. Anyone who has had difficulty digesting milk should try rennetized milk. "Junket" Rennet Tablets come in handy vest-pocket or purse-size tubes of 12. At druggists and grocers.

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"THE 'JUNKET' FOLKS," Chr. Hansen's Laboratory, Inc., Dept. 333, Little Falls, N. Y.

Please send me FREE SAMPLE packet of "Junket" Rennet Tablets and your illustrated recipe book of rennet-custard desserts.

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ucts, we produced but 109,605,000 pounds of powdered whey of our potential 479,000,000 pounds. Much the same is true of buttermilk left over from butter manufacture. It is suggested that whey with its protein removed would give substantial food value to carbonated drinks. Both dried buttermilk and whey would enrich the American dietary.

Wasteful meat and fish practices need review. Most housewives know that cheaper meat cuts are as nutritious as the more expensive ones and as interesting if they receive extra time and thought in preparation. But few realize that many of the more nutritious meat portions go into fertilizer or animal foods, and that the dog foods prepared by American packers often contain more vitamins, minerals and other food essentials than the chops and roasts that grace our tables. As a nation, we neglect organ meats and blood. Many of the great nations, past and present, to whose cultures we point with pride, have recognized the superior food qualities of liver, pancreas, kidneys, brain, heart, lungs and other visceral meats. Some authorities point to the great number of decayed teeth and degenerative diseases as a proof that American vigor is on the decline and say that primitive peoples knew what to eat better than we do today.

The housewife wishing to utilize visceral meats may have trouble getting them. So derelict has been our disregard of them that the average butcher, in cities at least, does not sell them. One New Yorker who went on a one woman hunt recently for a beef heart was told by ten butchers in that many shops that they do not carry such things. At least one authority considers oyster meat superior food to cow's milk because of its content of calcium, iron, other minerals and all vitamins. A nutritional advantage in the oyster, clam, lobster, crab and shrimp is that they are eaten whole, giving the valuable internal organ nutrients. Frequent servings of seafood and of fish in general conserve meat and add variety and needed food elements. Our streams abound in rough fish which are good food, and there is no need to eat only the usual varieties. Many of them—carp for example, deemed a delicacy abroad—pass unnoticed here. Inexpensive fish are available in most places and contain substantial amounts of vitamin B, in which our diets are often lacking.

We waste dried yeast, another rich source of vitamin B which contains 40 to 55 per cent of protein. The amount of dried yeast, a brewery by-product, sold for its vitamin content represents a fraction of that available, and additional supplies could be grown in almost unlimited quantities. Army nutrition experts, realizing its food value, offer it mixed with peanut butter as an optional spread for bread. In addition to B complex vitamins, yeast contains some vitamin A and considerable ergosterol, which when irradiated becomes vitamin D, which is not available in sizable amounts in unfortified foods other than fish liver oils.

Vitamin C, or ascorbic acid, is not too plentiful in our diet. Dr. Wilder suggests that since it has been made synthetically at low cost, it could be added to jellies, jams and other fruit preserves. Tomatoes, oranges and other citrus fruits, as well as black currants, strawberries and some vegetables, contain vitamin C. But fruits are bulky, difficult to distribute and often too expensive for general use. Heat tends to destroy C, making vegetables unreliable sources unless eaten raw. Some suggest we use more South American fruits rich in the vitamin, such as the mamey, sapedilla, silkana, ceriman, papaya, anona, soursop, star apple and guava. But usually they are obtainable only in exclusive shops or markets in some of the metropolitan areas.

The housewife sometimes learns that foods relied on as good sources of this or that may be relatively poor sources. Take butter, on which we rely so heavily for vitamin A. Laboratory tests show that it may be an excellent source, or that it may be unreliable. Some butter contains more than 40,000 International Units of A to the pound; other butter has less than 2,000 units. The quality of butter in general has improved within the last few years, but dairies would perform an even greater service if they standardized butter's vitamin A content at some high level.

Carotene, often confused with vitamin A, must be changed within the body before it can be utilized as a vitamin. Fish liver oils are

our best source of A, but with war making it difficult to get them, carotene becomes more important. Carrots, sweet potatoes and the pulp of certain other yellow and some green vegetables contain carotene. Carrots are so rich a source that 10,000 acres would yield about 20 trillion units a year, enough vitamin A for 100 million people for forty days!

Greater use should be made of soy beans, a food staple in many parts of China. Incidentally, beriberi and pellagra are said to be unknown where they are so used. A sausage called "brattling," made of skim milk and soy beans, is a mainstay of the German army. American housewives could use the press cakes formed by the expulsion of oil from soy beans (now thrown away or fed to animals) and convert them inexpensively into soups and other tasty dishes. The nutrients involved are almost as valuable as those of meat.

Little known vegetables deserve more attention. The taro, common in the Pacific islands, has a yield two to four times greater than that of the potato per acre and has a caloric content perhaps ten times that of rice. Breadfruit, peanuts, potatoes and sweet potatoes should be used to greater advantage, although the much publicized grass seemingly provides little nourishment.

While soy bean and peanut protein are superior to that of cereal, the latter has high energy value and is easy and inexpensive to produce. Oats, which grow further north than wheat, are superior because of a high thiamine content and a protein value better than wheat. The Scots and early Norse became hardy people on oats. Of rices, the housewife will do well to spend her money on the unpolished variety. It keeps well, retains about half of the thiamine of brown rice and is almost as white as polished rice after cooking. Brown rice, an excellent food, is more expensive and does not keep well. Of our present grain supplies, Vice President Henry Wallace estimates that wheat now stored in Canada, the United States, Australia and Argentina will cover Europe's import requirements for about three years. The corn supply is supposedly about as great. Lentils are also excellent food and deserve more consideration in American homes.

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GUESS AGAIN. THERE'S LOTS OF FOLKS WHO SHOULD NEVER TOUCH COFFEE AT ALL.
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Proteins, Professor Howard B. Lewis of the University of Michigan points out, remain the chief nourishers at life's feast. No body cells or fluids other than bile and urine exist without them, and the chief events of life are tied in with proteins. Sterility may even be tied in with lack of protein. Proteins come first in regulating vital processes. They influence growth and are part of hormones. Proteins are derived from both animal and vegetable foods, although animal proteins, including milk, milk products, eggs, fish and meat, both muscle and gland, are superior. Thus those eating vegetable proteins alone must eat greater amounts. Childhood, pregnancy and lactation call for greater than ordinary amounts of protein, and necessary amounts should at all times be taken each day. The body does not store this important food factor. As science has not yet determined what amounts and mixtures of protein constituents are needed, we should safeguard ourselves by eating plenty of them.

Dr. Clark W. Heath of Boston says that iron deficiency is overrated so far as its effect on adults is concerned. You will not necessarily get anemia if you do not get your daily iron quota—unless you suffer blood losses, are pregnant or growing rapidly. Iron is an element and is conserved in the body, which uses the same supply over and over. Unless excreted (and neither the kidneys nor intestines usually excrete much of it), iron that is eaten stays in the body unless bleeding hemorrhoids, abnormal menstrual or other conditions cause serious blood losses; an added exception exists in the case of growing children and pregnant women. Iron stores are maintained in the liver, spleen, kidneys, skin and bone marrow, ready in case of unusual demands. While you and I probably will not get anemia if our diets are iron deficient, a well balanced diet with meat, eggs, colored vegetables and whole grain wheat taken in sufficient amounts and providing some 12 mg. or more daily in food is desirable. There is also some justification for the addition of iron salts to flour.

Icie G. Macy, research nutritionist of Detroit, says that calcium, magnesium, sodium, potassium, phosphorus, sulfur and chlorine, comprising about 60 to 80 per cent of body minerals, require greater dietary consideration, since they perform a far bigger job than the amount in the body indicates. Food variations and habits may keep us from getting required minerals, which in turn depend on soil, climatic conditions, water supplies and varying degrees of dehydration occurring in the storage and handling of foods. The best diet need not be the most expensive, as many inexpensive and common foods have superior nourishment. Milk and milk products are the best source of calcium, the mineral most apt to be lacking in our diets. Vitamins C and D also are necessary for calcium utilization. Human dietaries usually have enough sodium, potassium and chlorine, although diarrhea, excessive sweating and certain gland or metabolic disturbances call for extra supplies. Acidosis, to which growing children are prone, may cause serious mineral losses—especially if the diet is high in fat.

If the American people take food shortages in their stride, they will benefit from enforced food economies. If the housewife carefully revalues the food habits of her family, basing her revaluation on the science of nutrition, her family will fare better than before. There is and will be sufficient food if all foods are properly utilized for the optimum feeding of the entire population of the world. And this may well be a prerequisite for world security and order.

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Another fact-packed article on dietary essentials in the series by Miriam Zeller Gross from the "Handbook of Nutrition"

"More Value from Meat," by Doris McCray—how to get the most value from our dwindling supply of meat products

The Hearing Aid

(Continued from page 179)

and they turn it off when they think it is not absolutely needed. An aid which is worn but not turned on is little better than no aid at all.

Efforts have been made by the American Standards Association's Committee on Batteries and Dry Cells to standardize hearing aid batteries by eliminating many different models, styles and shapes and thereby reducing the price. Some success has been achieved, but more progress is necessary before the battery problem will be solved completely for persons in low income groups. Recently the War Production Board, in pursuing its program to conserve materials and at the same time assure a supply of essential goods for the public, has proposed standards in voltages, sizes and terminals of hearing aid batteries.

Scientists and development engineers have a lot of room in which to exercise their talents. The threshold of hearing of a normal person is that of a ten-thousand-million-millionth of a watt of power, which in rough, everyday language is equivalent to the power expended by a fly lifting one leg in one second. Acoustical power for ordinary conversational speech is not so minute—about one microwatt, or one millionth of a watt. A sound of this power is of moderate loudness, about that of a conversation in a restaurant, or the noise made when gossip is at full heat at a ladies' circle. A modern hearing aid consumes about one tenth of a watt of electrical power. In other words, the present day vacuum tube hearing aid requires approximately 100,000 times more power to amplify conversational sounds of average loudness so that a hard of hearing person can hear. Complete with battery, the modern hearing aid—amplifier, receiver and all—weighs about 12 to 14 ounces. If an aid could be made more efficient and smaller, it could, theoretically, be 100,000 times smaller!

It is conceivable, however, that some time in the future there may be hearing aids which will render better service than those obtainable at the present time and which will be no larger than the cavity

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of the outer ear. This tiny hearing aid of the future will contain a battery, an amplifier, a microphone and receiver or their equivalents, and perhaps it will weight less than an ounce. Perhaps two aids will be used, one for each ear. Then an aid will be fitted to each ear, and each will be adjusted to correct the hearing impairment characteristic of the individual ear.

Because of limitations necessarily characteristic of the modern hearing aid, some otologists have not shown the interest in prescribing and fitting hearing aids that the manufacturers believe they should. At times, the otologist has found that a patient has placed the instrument on the shelf and gets along without it; thus the physician may prefer to recommend treatment that will prevent the acuity of hearing from becoming any worse and to suggest that his patient take up lip reading. If hearing acuity does not respond favorably to treatment, the physician with the patient's interest at heart will inform him that he can do nothing more in the way of restoring his hearing, and he will suggest that a hearing aid might help.

The outlook on hearing aids is promising. In the vacuum tube amplifier field as applied to hearing aids, within the last twenty years there has been a reduction in the size of the amplifier about four hundred fold and in its weight approximately thirty-five fold. This is a magnificent achievement by the development engineers working in radio and acoustical sciences. In the next twenty years, research and technology may well effect further reductions in size and weight and further electrical and acoustical improvements in the same proportion.

In view of past achievements, reduction in volume and weight does not seem impossible. Future hearing aids will be less noticeable than the modern spectacles are at present. Research in metallurgy, acoustics and electronics will do the trick. As the modern automobile is an improvement over the early horseless carriage, so the future hearing aid will be an improvement over the present day hearing aid. In general, the modern hearing aid is a notable accomplishment. Until a better aid is available, those with impaired hearing will be served well with the present instrument.

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DOLE

SYPHILIS—THE GREAT TRAGEDIAN

(**Continued from page 183**)

treatment awaited the twentieth century. Four epochal advances occurred between 1905 and 1910, thanks to the new sciences of bacteriology and biochemistry:

(1) Hoffman and Schaudinn looked into their microscopes and identified a spirochete animalcule as the cause. (2) Wassermann, Neisser and Bruck mastered a method for detecting syphilis in the blood. (3) Metchnikoff discovered a preventive effective after exposure—calomel ointment. (4) Then Ehrlich, searching for a one shot cure, hit on "606" or arsphenamine.

Following this spectacular burst of scientific discovery, one of the most stupendous in history, a multitude of researchers worked out the precise methods of using these new tools. Ehrlich modified his too-potent "606" to "914," or neo-arsphenamine. Levaditi introduced bismuth as a "heavy metal" treatment supplementing the various arsenic compounds introduced. Kahn, Eagle, Hinton, Kolmer and Kline devised standardized blood tests. Wagner and Jauregg introduced malaria fever therapy in paresis, and Simpson and Kettering invented an artificial fever machine to treat this and other stages of syphilis.

What Hoffman and Schaudinn saw under their microscope was a pale, hairlike, corkscrew-shaped parasite which they called *Spirochaeta pallida*—now more properly known as *Treponema pallidum*. The thing was so small that from 20,000 to 50,000 might spin in single file in the space of an inch. The germ is difficult to see, even under a microscope especially equipped with a dark field against which the spirochete shines as it darts through a beam of light.

The spirochete's natural habitat is the blood. But it prefers colonizing in tiny "ponds" in the tissues to swimming in the swift currents of the veins and arteries. Without moisture, it quickly dies.

The germ usually moves from one person to another by direct or indirect contact of the moist surfaces—mucous membranes. These transfer points are principally the mouth and the reproductive organs. At least 95 per cent of infection occurs through sexual intercourse.

Whether the spirochete can bore through an unbroken mucous membrane or must take advantage of a scratch or abrasion is not known, but some syphilologists believe that it can. At the point of entrance, the germs produce a lump which generally becomes an ulcer. This is the chancre of primary syphilis, and it appears at an average of 21 days after exposure. The blood test remains negative during at least the early phases of the chancre, which may continue unhealed for many weeks. The disease may be diagnosed by dark field examination of serum from the lesion.

This slow healing, though painless, sore on the genitals is a red flag warning the individual to get medical care. Often missed in the infected woman, it is also frequently overlooked among men. An infection can occur without a chancre or with a lesion so minute as to escape notice. Thirty per cent of males and 60 per cent of females with syphilis are apparently unable to remember a primary stage. Some doctors believe that the presence or absence of a chancre depends on the number of spirochetes gaining entrance. In any event, even the large ulcer type tends to disappear even without treatment.

With this insidiously disarming beginning, the spirochetes multiply rapidly and spread through the body to produce the secondary stage, which begins an average of six weeks after exposure. The typical symptom is a rosy skin rash; other lesions may be present, particularly in the throat and genitals. Again it is possible for the secondary stage, which is a second and larger danger flag, to be so slight that it does not cause alarm. This stage, too, may apparently pass spontaneously, although it is the stage of greatest virulence. The spirochetes have their widest dissemination in the body, as indicated by a strongly positive blood, and are moving into the areas where they may later cause trouble—the skin tissues, the heart, the nerves and the brain—during this secondary stage.

The primary and secondary stages, or roughly the first year of infection, constitute the period when the patient is the greatest public health problem. He is more infectious to others than at any later time. Infectious surface lesions may recur for five years, but seldom beyond three. After this lapse of time, the individual is unlikely to infect others.

Usually, all remains serene on the surface as the patient passes into a latent stage where the only indication that he has syphilis is a positive blood test. This "hiding out," which may begin in the first year, continues anywhere from a few years to a lifetime. It is in the later years, when the late lesions appear, that syphilis becomes the great tragedian. Its role rarely is that of the great, disfiguring sores, or gummas, pictured in the old medical textbooks, any more—probably because of increased racial immunity and the trend toward more and earlier treatment. Surface wreckage may appear, but organic breakdown is the great problem.

Insanity, locomotor nerve paralysis, blindness, heart and arterial destruction, and degeneration of bones and joints may occur. Brain and heart are probably the most vulnerable spots. Congenital syphilis, where the infected mother has transmitted the disease to her baby before its birth, commonly produces blindness or deformity if the child lives. Stillbirth is frequent.

Yet, in the face of these horrifying prospects, the person who, in the prime of his life, is shocked to learn he has a positive blood test need not give up hope. There are two good reasons for optimism:

One is that his body and syphilis may learn to live with one another. The famous study of untreated syphilitics in Oslo by Bruusgaard revealed that 65 in every 100 lived out their lives apparently unharmed by their infection. Twenty-three per cent developed a late lesion which incapacitated or killed. Twelve per cent suffered some disfiguring but

otherwise unimportant surface lesions. And none had treatment!

The second reason is the efficiency of modern treatment. About 95 per cent of all patients who begin treatment in either early or latent stages and follow the course prescribed by their physicians will be protected from disastrous consequences; that is, they will have a "clinical cure." Even after late complications have set in, a large portion can be saved.

Therefore, according to the best available evidence, nature gives the syphilis victim at least a two to one chance of escaping a tragic end, and medical science gives him at least a nineteen to one chance!

Except for treatment begun in the primary stage, the chance that a treated patient will have a "serologic cure" is less than 95 per cent. This means that his blood changes from positive to negative and stays that way. Serologic cures can be produced in from 90 to 100 per cent of primary cases, 80 per cent of secondary, and 68 per cent of latent cases.

The best authorities say that the result of the blood test is not all important. It is an excellent index to the presence of syphilis, but it is not infallible. Not only persons clinically cured of syphilis but those who never have been infected may have a positive blood reaction at times. Further, persons with syphilis may have a negative test, for example, in the chancre stage or during latent periods alternating with relapses.

A masterpiece of biochemical complexity, the blood test depends on the fact that syphilis usually produces an "antibody" in the blood which may be detected through its propensity for combining with certain animal fats. But, even in the most reliable laboratories, the standard diagnostic tests for syphilis are likely to be, in 100 cases of known syphilis, negative in 10, and in 100 noninfected cases, positive in one.

For this reason, one positive test cannot be accepted as evidence of syphilis. Tests must be repeated and supported, if there is doubt, by other tests. A Wassermann, Kahn, or like test is a laboratory method of *aiding* the diagnosis of syphilis. Unfortunately, the blood test has attained such importance in the minds of many lay and some professional people that it, in itself, can stigmatize the patient who, for example, seeks industrial employment or a license to marry. Not only adequately treated patients with so-called "Wassermann fast" reactions but an occasional noninfected person with a false positive reaction produced by malaria or other transitory conditions may be victimized.

Dr. J. Earle Moore, in his "Modern Treatment of Syphilis," emphasizes that "many patients with negative blood serologic tests *may be* infectious," while "most patients with positive blood serologic tests *are not infectious*."

Adequate treatment of syphilis does, it must be recognized, require perseverance and fortitude on the part of the patient. The accepted system of divided doses requires from forty to seventy injections over a period of as many weeks, followed by a year's periodic observation and an occasional checkup the rest of the patient's life. In early syphilis, the minimum amount of therapy which will insure the patient against infectiousness and destructive effects is twenty injections of an arsenical plus twenty injections of bismuth. The injections—arsenicals in an arm vein and bismuth in the hip muscle—must be administered within one year to obtain best results. No part of this regimen necessitates missing more than a day or two of work, however.

It is the mutual responsibility of the physician and the patient to prevent interruptions in the weekly schedule. For early syphilis, a little treatment may be worse than none. The danger arises from the fact that treatment interferes with the development of natural defenses against violent outbursts of the disease and, hence, if treatment is broken off, the patient has neither natural nor medical protection. This is not true of late syphilis, in which, the body having had full opportunity to build up defenses, any treatment is better than none.

Due to the feeling and appearance of well-being most of them enjoy, syphilis patients are prone to lapse in their routine care when treatment is doing them the most future good. In Chicago clinics, although they have been fortified by an intensive antisyphilis campaign, only 1 of every 4 receives adequate treatment before disappearing. The situation is worse in many of the clinics of the rural South, where the great majority of patients are uneducated Negroes.

Just as the problem of syphilis cannot be discussed intelligently without dealing with the sex association, so one cannot ignore the greater prevalence of syphilis in the Negro. The 3,000,000 estimated cases of syphilis in America are divided almost equally among white and colored races, although only about 10 per cent of the population is colored. The estimated rates are 13 per 1,000 for whites against 119 per 1,000 for Negroes. Two factors, lack of education and insufficient facilities for treatment, are believed to be mainly responsible for this nine to one higher syphilis rate among Negroes.

While state and local health departments, with the aid of federal funds, have been able to find tens of thousands of cases and have been able to establish clinics to care for a large part of them, case holding remains an unsolved problem as far as the mass control of syphilis is concerned. Only a few of the finest clinics have been able to hold until cured 75 per cent or more in the lines of patients who pass through their admittance and examining rooms. To do so, the physicians, public health nurses, and medical social workers have had to sell themselves and syphilis control to each individual, an educational enterprise which consumes much time and patience. Such individualized care and instruction is difficult to make effective where a clinic may have to handle 200 or 300 patients in an hour or two.

Where the patient is able to pay for medical care, the responsibility of holding him falls on the private physician. Studies have shown that the private practitioner has been able to do better than the average clinic in this respect, because of personalized care. He is not, however, able to cope with the masses who need treatment.

A hope for the solution of case holding in early syphilis lies in the new, shorter or so-called intensive five day or ten day method of administering a massive dose of an arsenical by dripping it into the patient's veins while he lies in a hospital bed. Originated at Mount Sinai Hospital, New York City, in 1933, the intravenous drip system may prove to be the most important development in syphilis treatment since Ehrlich's great discovery. It

has been used by researchers in a few thousand cases with immediate results apparently equalling those for the long treatment. But several years of continued followup to determine end results are necessary before it can be accepted for general use. Arsenic, after all, is a poison. It is an important function of the experts to guard the patient directly, or through the medical profession, against the toxic effects which may result.

If the individual benefits of arsenical treatment were nil, it would still remain of considerable importance in preventing the spread of the disease. One injection of neo-arsphenamine is sufficient to cause the spirochetes to disappear from a chancre in from two to six hours, and most certainly in twenty-four hours. As long as regular injections are continued, the patient remains in "chemical quarantine," and of no danger to his associates. Sexual relations, however, are not advisable until after six months of treatment, and then only with proper protection for the partner.

The shortcoming of early treatment as a measure of prevention is that more than half of the new infections go undetected and hence untreated. No way of vaccinating or otherwise immunizing a person against syphilis has been found. Yet the spirochete is so fragile that vigorous washing of the genitals with soap and water following sexual relations is likely to prevent infection in men, and may have some limited benefit in women if combined with a douche.

Chemical prophylaxis, employing Metchnikoff's calomel ointment plus silver salts, is a highly efficient preventive as employed by the United States Army's and Navy's prophylactic stations. While chemical prophylactics are useful in pocket tubes, self application is not as reliable as that under medical supervision, where failures are said to occur in only about 0.3 per cent of cases if treatment is given within an hour or two after exposure. No prophylactic is, of course, dependable where the user is drunk.

Because no other method of syphilis control is as certain as curbing promiscuous sex relations, the repression of prostitution, which is the greatest reservoir of infection, becomes sound public health policy. Unfortunately, this is difficult of attainment.

Public effort to teach individual methods of prevention is seldom made except in wartime, when physical fitness to fight and to work supersedes all other considerations. Justification of the employment of every weapon of any use in combating venereal disease is not hard, inasmuch as syphilis and gonorrhea cause more time lost in the Army than any other disease. The total loss was 7,000,000 man days in World War I.

With rapid expansion of the Army, its annual venereal disease rate jumped from about 30 per 1,000 troops in 1939 to 40 in 1940. The rise was due almost wholly to gonorrhea. At least some of the fault lay in the industry of the vice racket, which put its brothels on wheels and, in keeping with all military history, followed the camps. Aided by the pressure of public health and social hygiene leaders on civilian police authorities to clean up red light districts, the Army's venereal disease control officers appear to have regained control of the situation. The rate dropped in the first half of 1942 to 38 per 1,000. Probably due largely to the rejection of men with positive blood tests, the syphilis rate has remained stable during the million by million expansion and is now at its lowest point in Army history. Blood tests on draft candidates have, it is estimated, screened out more than 200,000 "infectees."

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by

ERNEST R. GROVES

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QUESTIONS AND *Answers*

Taste

To the Editor:—I know that the sense of taste is located chiefly in the tongue and the soft palate. What puzzles me is why does holding the nose when eating something prevent one from tasting it? R. K., Minnesota.

Answer.—Taste buds are located chiefly on the tongue, but they may also be found on the hard and soft palates, the pharynx, epiglottis, larynx and the inner surface of the cheek. There are only four primitive taste sensations: sweet, sour, bitter and salt. Many of our so-called tastes are better designated as flavors and depend not on the organs of taste but on the sense of smell. An onion, for example, has very little taste. If the nose is held to prevent the air from circulating into the nose from the mouth, little difference can be found between an apple and an onion! Even coffee has almost no taste, and one cannot tell that he is chewing a coffee bean if the nose is closed.

Transplanted Ovum

To the Editor:—Has there ever been an experiment carried out obtaining an ovum from one woman and placing it in the uterus of a sterile woman for fertilization? M. S., Illinois.

Answer.—No attempt has ever been reported of obtaining an ovum from one woman to implant it in the uterus of another. The reasons that this would not be a practicable procedure appear to be as follows:

It would require a major operation on both women. The ovum from the donor would have to be secured from the tube, which would mean the excision of the tubes, as the operator could not know in which the ovum was located. It is also possible that there would be no ovum in either tube because of miscalculation as to time of ovulation. It is improbable that any woman could care to undergo this procedure for such a purpose. It would be necessary to open the abdomen of the recipient in order to place the ovum in the tube.

The ovum is known to have a very short life, measured by hours only. Whether or not it would stand the injury caused by transplantation is difficult to state.

Ova have been obtained from tubes which have been removed when operation was necessary for some other reason, but transplantation has not been done. So far, transplantation has not been done in animals.

Anesthesia

To the Editor:—What is the physiologic effect which produces unconsciousness when ether is taken into the lungs? W. T., Iowa.

Answer.—Ether vapor leaves the air sacs through thin membrane separating the air from the blood. It is carried in solution in the blood to the brain, where it again passes through the thin vessel walls surrounding the cells which maintain the function of consciousness. When ether vapor no longer enters the lungs, the vapor is carried in the opposite direction from the area of high concentration in the brain to the area of low concentration in the air sacs, and thence out through the expired air. So much is known. Just how ether affects the brain cells in such a way as to interrupt their normal action and yet permit the return of normal action when it is carried away by the blood is not yet satisfactorily explained.

John Snow (1858) thought that in some way ether prevented enough oxygen getting into the brain cells to keep them working properly but permitted enough oxygen to get into the cells to prevent their destruction. In the fifty years following 1858, many theories were evolved to explain how ether produces unconsciousness. Some of them included the belief of Snow that ether changed the cell, its substance, its containing cover, or the character of the juices around the cell, in such a way as to interfere with oxygen delivery to or utilization by the cell. A textbook written in 1914 contained an account of no less than fourteen theories of anesthesia. The last one mentioned was that of Verworn, published in 1912, which returned to the theory of Snow. Verworn said: "General anesthesia originates through a disturbance of the oxygen metabolism." Many facts discovered since 1912 support this explanation. For example, aviators flying at high altitudes, where oxygen is not so plentiful in the atmosphere, become unconscious and recover on return to lower altitudes, where oxygen is more plentiful. However, if an anesthetist causes a patient to breathe nitrogen mixed with much less oxygen than the air contains, the result is not true anesthesia. Unconsciousness occurs just as in the aviators at high altitudes, but the muscles of the patient do not relax as in anesthesia, and breathing and heart action are more abnormal than under ether anesthesia. Extensive research at present is concerned with the very complicated processes by which normal activity of cells is maintained (the oxidative cycle). When more is known of these intimate physiologic activities, a more exact answer may be given as to just how ether produces unconsciousness.

Removing Hair

To the Editor:—I am having some hair removed by electrolysis by an operator in Albany who uses the Kree Method learned in New York City. I have had seventeen hours of work at $5 an hour without any apparent results as yet. Whenever I complain the reply always is that it takes three months for all hair to grow out, so I must have patience. My physician felt that did not sound right.

Now if this is just a gyp game as are many beauty treatments for women it seems to me it is time for some one to look into it. Has the Medical Association ever done so, or does it take hair that long to regrow? I know that I had a heavy growth on the chin from tweezing and on the lip from dry shaving but it seems after six weeks something should be apparent as far as results are concerned.

I would not expect to have my money returned but I would take it up with the Better Business Bureau of the Chamber of Commerce.

H. W., New York.

Answer.—Removal of hair by the Kree method consists of electrolysis with a standard procedure, using galvanic current, usually with multiple needles. After treatment, the hairs are removed by the operator. It is difficult to understand the statement "without any apparent results as yet" because one can actually count the hairs taken out each time. If the hair root has been killed it will not regrow. If not, the hair will reappear in from three to six weeks. Failure to destroy the hair root may be due to use of too little current or to abnormal shape of the hair follicle which prevents the needle from reaching the root. If a heavy growth of hair is present, it may take considerable time to remove it, but one should be able to evaluate the results by determining the number of hairs removed at each treatment and the number that return. Treatment by an efficient operator will be followed by a very small percentage of regrowth (less than 10 per cent).

Color Movies

To the Editor:—Are technicolor movies harder on the eyes than regular movies?

E. H., Ohio.

Answer.—No.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

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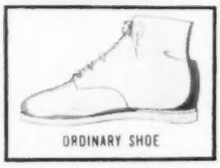
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Safe, Painless Childbirth

(*Continued from page 175*)

was considerable experimental evidence to support the idea. In 1913 German doctors found that, by injecting a local anesthetic into the area around the bottom of the spinal cord they could block the sensations of pain that come when the uterus or womb contracts. Many American doctors took up the technic and developed it with successful results, one physician reporting over 400 cases, another more than 200. But this method of "single blocking" reduced rather than eliminated the pangs of childbirth. The prospective mother passed through a considerable number of hours of preliminary pains before the single nerve-blocking injection was attempted toward the end of the labor.

On Jan. 6, 1942, Drs. Robert A. Hingson and Waldo B. Edwards of the U. S. Public Health Service introduced a modification of the single-injection method, with the idea of keeping the woman free from pain during the entire period of childbirth. But first they had made an exhaustive study of the human anatomy to determine exactly where the needle should be inserted in the lower spinal column in order to block the nerves concerned in childbirth without placing the anesthetic in the spinal fluid or where it could act on the spinal cord itself. That study emphasized the importance of knowing the anatomy in order to apply the new method safely. Unless the anesthetist knows the anatomy of this region he is likely to have failures; and, indeed, such failures of the new method already have been recorded in a few instances.

But the new procedure, in the hands of experts, is amazingly effective. The prospective mother receives her first injection of metycaine, a derivative of cocaine, while she is still in bed in the hospital. She lies with her knees drawn upward toward her elbows, so that the spinal area to be treated is especially prominent. Extreme care is taken to make certain that the needle is in exactly the right spot. Obviously, it must not be in the spinal cord, which would be indicated by the appearance of spinal fluid. If blood appears, the needle has entered a vein and the position must be changed. The anesthetic solution must enter neither the blood nor the spinal fluid, but only the area immediately around the nerve.

The special needle used is made of malleable stainless steel, and is semi-flexible so that it will not break even if the patient rolls over or changes her position. Once it is satisfactorily placed, it is held in place by strips of adhesive tape. Then it is connected by rubber tube to a bottle containing the anesthetic solution, and a few teaspoonsful of the anesthetic are injected.

Patients themselves say that a few moments after the first injection they have complete relief from pain. Injections are repeated at intervals of from 45 minutes to an hour and a half, as needed. The patient lies in her bed comfortably and without pain until just before the baby is to be born.

The doctor, of course, must watch the progress of the childbirth with extreme care, for he does not have the usual warnings that normally come from the mother's increasing labor pains. Instead he must observe the increasing frequency and strength of the contractions of the uterus. For this reason the new method must not be practiced by those who are not fully trained both in the administration of anesthesia and the science of childbirth. Doctors Hingson and Edwards, in their report published in *The Journal of the American Medical Association*, point out that the method depends for its success on a high degree of obstetric competence, on the avoidance of cases in which there are contraindications, such as abnormalities of childbirth, and particularly on the willingness of the physician to proceed with due caution and without haste. When such a method is properly used, the results are amazing.

In the shortest confinement reported, the new method of continuous caudal anesthesia was applied and the baby born within 35 minutes. But in the longest case, a mother having her first baby, the method was continued for 30 hours, without the slightest pain to the mother, and without any danger to either mother or child.

In the U. S. Public Health Service Marine Hospital at Stapleton, Staten Island, N. Y., where Drs. Hingson and Edwards introduced the new technic, there were in the first 100 cases 89 mothers who were having their first babies, and 11 who had given birth to children previously. A few of the latter group told me personally that the contrast between the old and new methods was simply indescribable. It was the difference between pain and suffering and no discomfort at all. Actually, one of these experienced mothers interrupted her quiet luncheon to go to the delivery room and have her baby, and finished her luncheon when she came back to the room a little later!

The new method of painless childbirth has been applied in 489 additional instances in 19 medical schools and teaching hospitals, including those at the Mayo Clinic, at Fort Sam Houston, Texas, in the Walter Reed Hospital in Washington, D. C., in the Chicago Lying-In Hospital, and others in Syracuse, N. Y., and Philadelphia, Pa.

Dr. Francis R. Irving, associate professor of clinical obstetrics at Syracuse University College of Medicine, who has had opportunity to test the new method for a considerable period, states: "There is no question that it is perfect painless childbirth without deleterious effect on mother or child." Another important opinion has been expressed by Dr. Norris W. Vaux, professor of obstetrics at Jefferson Medical College and attending obstetrician at the Philadelphia Lying-In Hospital:

> "Our experience at the Philadelphia Lying-In Hospital with continuous caudal analgesia since July has been highly satisfactory. It is 100 per cent effective analgesia and is not dangerous if administered using the technic outlined by Drs. Hingson and Edwards. It needs constant supervision by some one trained in the technic."

Some of those who have worked with it report failure to secure complete freedom from pain in 10 or 15 per cent of the cases, some in even smaller percentage, but even in these instances the pain has been lessened.

One thing is certain: painless childbirth by this method has been accomplished in some hundreds of cases. The method is still in what modern medical science likes to call an early experimental stage. For the present it must be used only in hospitals, by those specifically trained in the method, and with the assistance of expert anesthetists. When it is properly used, there is no doubt that this method of painless childbirth represents one of the greatest advances in modern medical science.

Recently, an obstetrician in San Antonio, Texas, wrote me, reporting on the experience of his wife:

> "In the first place, I want to tell you that this obstetrical analgesia is wonderful. I never saw anything more spectacular . . . . Immediately after the initial injection she did not have any pain, and the length of labor was, in my estimation, greatly shortened. She was in the delivery room only thirty minutes and felt fine immediately afterwards. Neither she nor the baby had any difficulty."

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STREAMLINING MILITARY MEDICAL CARE

(*Continued from page 195*)

hospitals of the early period of the war into clean, efficient, sanitary havens of rest. Nevertheless these improvised hospitals were inadequate, and a pavilion type of hospital was soon developed. These were made of lumber; they were easy to construct and keep clean and were on the whole thoroughly satisfactory. Hundreds of them were built during the Civil War. Wood cuts and photographs illustrating books of that period showed details of construction and gave them everyday familiarity. Except for minor details, the same general type of hospital was used in the Spanish American War and the World War, and the same type is used for the smaller station, evacuation hospital and general hospital of today.

During the eighty years since the Civil War there has been unparalleled progress in the medical sciences. Greater advances have been made in this period than at any other time in history. Of necessity, this progress is reflected in improvement of the care of sick and wounded by the Army and Navy Medical Corps. With the streamlining of modern warfare, modernization has extended throughout the Army.

At or near the front today there is a wide variety of hospitals that must be constantly on the move. These include clearing stations, surgical and evacuation hospitals. Usually these installations are under tents and are portable. For many years military surgeons were dissatisfied with the easily transportable hospital under tents. It has long been recognized that housing in tents is a most expensive means of shelter. The initial investment is high, the average length of life of canvas exposed to the elements is about six months, and the attendant fire hazard helps to make tentage an undesirable cover for hospital patients. In addition, medical science has progressed to such an extent that more and more equipment is needed for adequate modern care of patients. Physicians and surgeons felt that they could render better care if a more satisfactory, easily movable and easily erected type of hospital could be evolved.

The mobile hospital has been the answer. After considerable planning, a prefabricated hospital was built. It was carefully taken apart piece by piece so that it could be stowed away in convenient boxes. The plan contemplated sailing to some distant port, taking out all the material and assembling the hospital. A mobile hospital test was run late in 1940 by the United States Navy. The entire hospital consisted of 135,000 cubic feet of materials, weighing about 600 tons. In the test, it was taken from the ship's hold, unloaded at the dock and transferred to the hospital area in one day. The backbreaking efforts of the entire hospital personnel were required to move the 15,000 boxes, crates, bundles and odd items that go to make up the hospital. Doctors trained as surgeons, internists, radiologists and orthopedic surgeons had to assume new roles as trucking experts, utility men, specialists in the erection of buildings, in water supply, mess and other nonprofessional functions. It usually takes from two to four weeks to prepare a mobile hospital for full operation. As one man has remarked, "I didn't know there was so much labor pain in the building of a hospital."

Details of the construction of these hospitals cannot be given; however, they represent the best type of prefabricated hospital that is easily movable. Numerous advantages are afforded by the newer type of construction. Wards are large enough to provide adequate floor space and ventilation for patients. Prefabricated buildings allow enough height so that nurses can stand erect while performing their duties instead of working in the low, crowded corners of tents. Mobile hospitals are completely screened and have hinged window shades, eliminating the dust, flies and numerous other discomforts of tents.

Arrangements must be made to have the hospital site selected in advance of the arrival of hospital personnel whenever possible. Since the initial tests, it has been found that a mobile hospital can be more efficiently erected by a construction crew than by the hospital personnel. During World War I, for example, the United States Naval Base Hospital at Queenstown, Ireland, was constructed by laborers under the supervision of a civil engineer. Hospital personnel were not transferred until the buildings were ready for use, consequently there was a conti uity of utilization of their professional services.

The modern advantages of a mobile hospital are many. Plumbing is perhaps the most welcome feature. Wards are provided with running water for toilets and showers, greatly reducing the labors of the nursing personnel. Hospitals under tents usually have their water supply and latrines at some distance from the patients, so that nurses and attendants must make these trips frequently. One 350 bed mobile hospital consumed a daily average of 9,000 gallons of water. The patient in a mobile hospital is more apt to receive better nursing care than one under tentage.

Portable electric generating plants have also contributed considerably to the patients' comfort. Electric ranges can be used to prepare special diets and warm foods at odd hours, in addition to the general mess. In the tropics, an electric refrigerator is a boon to the morale of the sickroom. A central generating plant makes it possible to have electric lights in wards, supply rooms, kitchens, and officers' and nurses' quarters.

There has been a continuous study and improvement of these hospitals. For example, in some early mobile hospitals it was found that necessary tools such as hammers, saws, picks and axes were among the last items to be delivered. By shifting the order and manner of stowage, this defect was overcome. Prime movers, such as automobiles, trucks, power winches and the portable electric generating set, now have early priority in any

unloading program. Plain, large markings on boxes and stowage have resulted in the saving of much labor, obviating much rehandling of items not immediately needed.

Improvement of hospitals is not the only improvement in medical care of the sick and wounded. In the accomplishment of this objective adequate medical personnel is assigned to every department of the Army. For example, a number of medical officers, physicians and enlisted medical department personnel is attached for duty to the Infantry Battalion. This medical detachment lives, eats, sleeps and trains with the larger unit which it services. It is the duty of these medical soldiers to render prompt evacuation and care for all wounded in battle.

The efficiency with which these units function is remarkable. In the recent operation on Guadalcanal, the part that the medical corps played was truly great. A recent report by Admiral McIntire, Surgeon General of the United States Navy, described in some detail the efficacy of the medical department. All wounded were promptly evacuated to nearby aid stations or clearing stations for early treatment. Men who were badly wounded and suffered from hemorrhage were given transfusions of plasma. In the case of the seriously wounded, it was often necessary to give blood plasma immediately, and medical personnel were trained to give it. In fact, recent developments have made it possible to give plasma in battalion aid stations and even in the field.

As a corollary of streamlined and rapidly moving warfare, there has been a greater emphasis on rapid evacuation. In the operations on Guadalcanal, a plan was put into operation whereby all wounded were evacuated by airplane. As soon as possible a wounded soldier is evacuated to the battalion aid station, where initial treatment is given. He is given food and fluids, made warm and prepared for evacuation by airplane. At night, specially constructed airplanes regularly evacuate the wounded from the Solomons to the mainland, where further treatment may be continued in a mobile evacuation or general hospital. As a result of this "blitz" handling there is earlier care of the wounded. It is axiomatic that earlier care means better results. Thus far, Admiral McIntire reports that there has been a mortality of less than 1 per cent of all wounded evacuated by air—a brilliant contrast with the 40 per cent mortality of the preNightingale hospitals in the Crimean campaign!

Progress will continue in all phases of the handling of the sick and wounded. Sulfanilamide, blood plasma, closed plaster of Paris treatment of fractures, mobile hospitals, airplane evacuation and other features have tremendously reduced battle mortality. Research in military medical problems is being conducted in many medical centers and schools. Additional field experience is constantly helping medical officers in their work. The Medical Department stands ready to aid every one, wherever he may be, with the best that medicine has to offer. Physicians, moreover, are still eager for additional improvement. The American soldier of tomorrow will receive still better medical care.

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by

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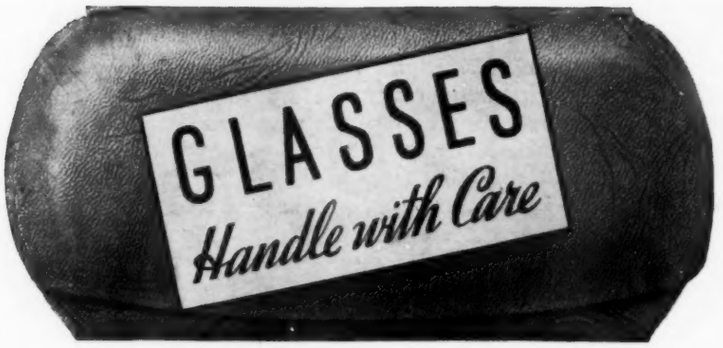

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Ask any Guild Optician for the names of Eye Physicians in your Vicinity

TWO EYES TO SEE WITH

(Continued from page 177)

will not make him acceptable as an Army or Navy aviator. He must in addition have normal color sense, stereoscopic vision, depth perception and perfect coordination of muscle action in both eyes whether they are focusing inches or miles away. All these tests must be passed without eyeglasses. Two perfect eyes to see with is a "must" for these guardians of the air. Millions of Americans are ineligible for an air corps that flies with its eyes! However, a large percentage of these people have eye defects that can be remedied by the physician, and many could be rehabilitated to qualify for branches of aviation. The duty of the eye physician is to acquaint the patient with his visual potentialities from childhood to old age. Fortunately, most of us are born with perfect eyes. A child reading poorly printed comic books on the floor, by poor illumination, can strain the focusing apparatus so that one eye wanders outward as the first step in the development of "wall eye." Excessive reading by young, farsighted individuals can precipitate the deforming condition of crossed eyes. A defense worker handling finely calibrated micrometers continuously for hours can so fatigue the eye muscles that double vision results. The effect of viewing two full length movie films is well known. These are a few common examples of use and abuse.

It behooves parents to have young children's eyes examined before they enter school and not to wait until a gross visual loss is discovered by the school doctor. The educational curriculum is arranged for students with healthy eyes. Unless the children's eyes are normal their work will fall below par. Here again the visual performance, as in industry, depends on more than eyesight alone. Millions of children could be spared the necessity of wearing glasses if the proper preventive means were employed. Every person, before entering a trade or profession, should be subjected by his physician to a complete eye examination in order to evaluate the possibilities for eye work. Obviously, a color blind train engineer would be a menace to himself and his passengers, yet perhaps his technical experience qualifies him for many important positions where color discrimination is not essential. You would not care to engage a crosseyed chauffeur who sees two objects on the road when only one is present. Five per cent of the 35,000 deaths annually following automobile accidents are due to poor eyesight or disturbances in coordination of the two eyes. Many of these demons at the wheel should be alive today and healthfully engaged in vital physical endeavors devoid of risk to themselves and their families.

The lack of depth perception is a serious shortcoming for operators of steel cranes but of no special concern to manual laborers. Accuracy of work is in direct proportion to general eye perfection. Research conducted at Purdue University revealed that girls with poor vision worked faster than those with normal vision because they did not see the defects in the materials they were assorting. It is possible, therefore, for persons with imperfect eyesight to be fast workers provided great accuracy is not required. As a rule, patients to whom deficiencies of the visual apparatus have been explained exercise greater care and have fewer accidents than the careless individual with normal eyes. An expert in the motor vehicle bureau states that a chauffeur with only one normal eye is far more reliable and safer at the wheel than a driver possessing 50 per cent eyesight in each eye!

Clerical workers, proofreaders, bookkeepers, garment workers and others in endeavors requiring sustained effort at close range develop blurred vision, severe headaches, general fatigue and even stomach upsets. A delicate watch must be wound once or twice daily to run perfectly. Our delicate eye machinery must be unwound by daily rest periods to be maintained in comfort. Reading fatigue must be avoided to prevent the print from "swimming" across the page.

No? Your eyes *are* in bad shape!

Many tests are available for determining whether a person uses one or two eyes. The stereoscope is the oldest and most familiar apparatus, but in the light of modern scientific knowledge it must be considered crude and lacking in diagnostic accuracy. Investigators at Dartmouth University have shown that sometimes each eye receives a different sized image. They have devised a delicate method of ascertaining if both eyes are working together. Army and Navy air corps examiners use extensive tests to rule out applicants with eye imperfections. Unfortunately, the equipment required is so complicated and expensive that it is rarely used in doctors' offices.

A simple device utilizing several white-headed pins has recently been perfected by Dr. Morris Davidson, eye physician for the New York State Department of Labor. It is inexpensive, reliable and highly recommended for rapidly judging the individual's ability to use both eyes in the act of seeing. A great number of people unknowingly go through life seeing with only one eye. If the entire population of our country could be tested, the total would probably be staggering.

The various disorders referred to can be treated satisfactorily. If a person has one nearsighted eye, and farsightedness or astigmatism in the other, the vision can be equalized by correcting lenses. More complicated conditions may require prism glasses, muscle exercises, orthoptic fusion training, or special prescriptions for some other condition. In some instances the eye muscle action has to be increased or decreased by a simple surgical procedure. The intimate relationship between a sound body and healthy eyes must be remembered. The annual periodic health examination should always include a survey of the visual resources.

Perspiration

(Continued from page 185)

some product or other is a perspiration depressant, meaning that the material advertised can act to reduce the amount of perspiration, have often been censored for other reasons. The Federal Trade Commission has in several instances deleted claims that antiperspiration products are "perfectly safe." In one case, the commission permitted the statement, "perfectly safe when used as directed."

A material used to reduce or change the odor of perspiration is a deodorant and not an antiperspirant.

Soap and water act to remove the result of excessive sebum formation from the surface of the skin. A greasy dish cannot be cleansed by merely pouring cold water over it. Hot water acts a little better. Soap added to the water, with proper agitation or scrubbing, cleans the greasy dish easiest and best. This applies as well to the product of the sebaceous glands or fat sac activity on the surface of the skin. Liberal application of soap and water, with agitation by the use of a washcloth, acts to remove the product of the fat gland activity from the surface of the skin. The removal of this material prevents its deterioration, the primary cause of the unwanted odor.

A special form of undesirable odor from the body is associated with ringworm of the feet. Persons complaining of malodorous feet should report to their physicians for complete examination for ringworm between the toes and in the spaces close to the sole. The cure or amelioration of ringworm results in the reduction or possibly the elimination of the odor.

Another specialized form of odor is associated with scalp hair. The primary cause of malodorous hair is the same as the primary cause of odor under the arms. The hyperactive, or extra-active, fat sac glands associated with the hairs of the scalp give rise to the odor. The removal of the products of the fat sac by repeated washings at weekly or ten day intervals usually eliminates the cause of the odor.

An interesting phenomenon about body odor from perspiration under the arms or from the hair is that the afflicted person rarely recognizes the disparity in odor readily perceptible to friends, relatives or coworkers. Nearly everybody remembers some time when he has entered a room occupied by ten or twelve people, with all the windows closed, and has been overwhelmed, at first, with a sense of body stench. After a lapse of ten or fifteen minutes, the new occupant is as insensible to the accumulated odors as those who were in the room before him. Too, some people have a more sensitive sense of smell than others, while many are insensitive to odors. These characteristics make it possible for some people to go about with a body odor without knowing it.

Insofar as home remedy is concerned, a good soap and water application is advised. If the soap does not lather freely in the water from the city main, boiled water should be used. If this fails to give a rich lather, clean rain water may be tried. Soft waters permit free lathering with soap. A thorough rinsing after the soap and water application is necessary. It is wasted effort to wash, shampoo or cleanse with soap and water and then leave the dirt or dirt combined with soap in the hair or on the skin surface.

HYGEIA INDEX AVAILABLE

The complete index to Volume 20 of HYGEIA (January-December 1942) is now available. A copy for reference use may be obtained by sending a stamped, self-addressed envelope to Mr. Frank V. Cargill, Circulation Manager, HYGEIA, 535 N. Dearborn St., Chicago, Ill.

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50¢

THUM contains capsicum 2.34% in a base of acetone, nail polish and isopropyl.

WHEN BABY'S ON THE WAY

(*Continued from page 198*)

in his attitude toward her, she is apt to interpret that casualness as a lack of interest. The discovery that minor difficulties in their own homes were a normal part of the husband-wife relationship at such times seemed to relieve these young men of some of their anxieties.

For the second part of the course, trained nurses are our instructors, for they are expert in the care of the baby and his equipment. But we needed a nurse with more than hospital experience. While the baby is the center of the universe in the hospital nursery, he's just a member of the family at home. At least, that is what he should be if the adults are to have satisfactory lives and he is not to rule the roost. The Association is fortunate in having among its friends a graduate nurse highly skilled in all the tricks of home nursing—herself the mother of a family. She knew from her own experience how it feels to come home from the hospital with a strange, squirming, squealing baby and, while still on the wobbly side, to try to put into practice those procedures so highly recommended by the hospital staff. In this nurse we have some one who can explain how you take care of a baby with a minimum of fuss and paraphernalia, using such equipment as you have at hand. Improvising equipment takes some ingenuity, but it becomes increasingly important as priorities snatch the very bathtubs out of sight! It is good to know how serviceable two kitchen chairs and a clean sheet can be as the foundation for a bassinet and how useful paper bags made out of folded newspapers are.

She can be convincing, too, about the necessity of the mother budgeting her energy as well as her time. Many young women expect far too much of themselves while they are becoming accustomed to being mothers. If they can be helped to accept their limitations in physical strength, if they understand the importance of an hour's rest over an hour's unnecessary housework, the baby's schedule can be fitted into the household routine and many heartaches and headaches can be avoided.

When we come to the development of a normal baby, the pediatrician takes charge of the course. So much has been written about the importance of laying the foundations of a happy, healthy personality in infancy that the expectant mothers who come to these sessions hardly need to be told *that*. What does need emphasis, however, is that the normal is a pretty elastic state. Babies differ from one another just as older people do. Normal and average are two concepts which must not be confused. Certain steps in development are signposts that all is well, and part of the pediatrician's contribution is pointing out these signposts. Probably the most reassuring words a mother could hear were spoken by one of our visiting pediatricians when he said, "Babies are tough." Another contribution the doctor makes is to explain how a mother can tell when her baby isn't well and to help her acquire a healthy attitude toward children's illnesses.

Schedules, which are likely to be a bogey to young mothers, are looked at from many points of view. The change from a rigid schedule to the schedule following the baby's own needs, now regarded with favor by most authorities, always provokes sighs of relief along with "ohs" and "ahs" of surprise. Tied up with the emotional development of the tiny baby is the question of spoiling it. The essence of the matter seems to be that babies who get enough of the right kind of love are not inclined to demand too much time or attention.

Last of all, the family relations expert projects the picture of the new family against the background supplied by the earlier discussions. What are the needs and the rights and the obligations of each person? Is the new member really accepted by his father? There is a lot more involved in making room for a new baby than clearing out the top drawer of papa's bureau. The old saw about the obstetrician who never lost a father isn't even half true. More fathers are lost emotionally than this world dreams of. When babies were born at home and father rushed up and down stairs with hot water and clean linen, there was no danger of his becoming the forgotten man. (Those days may be returning again, if hospital space gets scarce.) But there is nothing about the couch in the hospital waiting room to give a man dignity and status. So he may feel superfluous while he waits for the baby to be announced, disappointed at the red-faced, wrinkled bundle, and puzzled and frustrated when he finds his wife apparently more attached for the moment to her doctor than she is to him. No wonder it sometimes takes a few months for a father to become genuinely fond of his baby! But if both mother and father understand these surprising kinds of behavior nobody will feel unduly disturbed or guilty.

Of course, there are grandparents! How do you handle them? Or don't you? These are questions to which nobody, least of all the staff of the Association for Family Living, would attempt to give definite answers. If the expectant parents are given a little guidance in approaching these situations, many problems need never arise. Parents can be helped to take a long view of the family as an on-going group, one that will be living and working and playing together for many years. Seeing the family group in such a light makes it possible to understand that often it is not a particular incident that is important, but what that incident does to the relationships of the people concerned. For instance, suppose grandma comes for a week's visit and announes that she loves to rock a baby and proposes to rock her new grandchild. If the new mother realizes that rocking a baby occasionally isn't anything serious, even though she doesn't go in for it heavily herself, she will not make a great issue of the matter. She

may tactfully suggest that the baby is awake in the late afternoon and likes to be played with then. That time can be set aside for grandma and the baby. The mother knows that after grandma leaves she can again accustom the baby to a routine involving no rocking, that if too much emphasis were laid on the letter of the law, a strained atmosphere might develop that would affect the baby much more adversely than a week's rocking. Flexibility is a great asset, and the baby who grows up in a home where he is assured love and affection can weather almost any ups and downs in his surroundings.

After several hundred young women had attended these meetings, the staff of the Association for Family Living felt the time had come to find out if the material was really helpful and whether or not it had any carryover in awakening mothers and fathers to the potentialities of parent education. Accordingly, a questionnaire was sent out to all those who had taken part in the course. Briefly, the answers revealed that most parents who attended the course felt that it had helped them by acquainting them with what to expect, by relieving anxieties, and by anticipating required adjustments. Only 2 per cent said that they had not been helped at all. The majority answered that it had stimulated interest in continued self education through reading, attendance at lectures and frank discussion between husband and wife.

These answers, together with the response of professional people and the interest of the press, as well as as the number of people attending the meetings, have led the Association to believe that this kind of preparental education has a definite place in any program for parents. Indeed, it seems safe to say that the more we can acquaint mothers and fathers with the kind of situation they will be handling, the fewer problem children these parents will have to deal with later on. It also follows that there will be fewer problem parents seeking and needing help from guidance organizations and behavior clinics. Preparental education is an ounce of prevention, and as such is a sound investment for any community.

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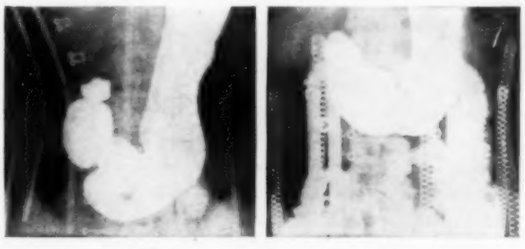

Doctor's X-ray, far left, shows crowding down of stomach by ordinary corset. The other, of same woman in a Spirella, shows her stomach raised about 3 inches.

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Poor position and improper lighting contribute to eyestrain—one of the causes of nearsightedness in children

DOES YOUR CHILD SEE?

By ALSTON E. CALLAHAN

MRS. CLARKE, president of the local Junior League, was sitting in my examining room, a look of vexation on her otherwise pleasant face. In the examination chair sat her healthy, intelligent looking and spanking clean little girl, aged about 11.

Before I could ask a question, Mrs. Clarke exclaimed in a tone of irritation: "Doctor, Sheila brought home a note from the school nurse saying that her eyes are bad."

It was evident from her manner that Mrs. Clarke thought the nurse did not know whereof she spoke and that it was a preposterous idea! She continued: "I know they're all right but I wanted you to check them."

"And how is your sight?" I asked the pretty little girl.

"I've been telling Mother I couldn't see so well," Sheila said, looking at her mother apologetically. Only good manners kept back the flood of words on the tip of Mrs. Clarke's tongue.

"Can you see the writing on the screen at the movies?" I asked.

"No, sir—except when it's big and says the name of the movie."

"Do your eyes hurt?"

"No, sir, they just ache a little sometimes."

Mrs. Clarke could contain herself no longer. "Oh, Doctor," she broke in, "Sheila is like her mother—she imagines things! Why, no one in

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our family has ever had anything wrong with his eyes!"

I cut short any further argument, for it was obvious that it had been discussed at length at home, by turning on the test chart light and asking Sheila to read the letter "E" at the top. The chart was plainly visible and to read the largest letter requires a visual ability of only 5 per cent of normal.

There was a moment's tense silence, and I could hear Mrs. Clarke's anxious breathing.

"I don't see any letters at all," the child said softly.

Thus it was brought home undeniably for the first time to Mrs. Clarke that her darling actually had something wrong with her eyes and she had been stubbornly refusing to admit it to herself! She made a final gesture, and in something akin to terror she cried:

"Sheila, you know you can see those letters! Look again! Read them all out!"

This little drama of my everyday practice has been re-enacted so many times in the office that I know all the lines, all the cues. Continuing the examination shows, however, that the child is fortunately not nearly blind but markedly nearsighted, and that she must wear thick lenses for the rest of her life, since nearsightedness in a child almost never decreases. Had Mrs. Clarke been observant and less unwilling to admit the possibility of a defect in her little girl's eyes, this regrettable state of affairs need not have occurred.

Sheila is more than an individual case; she is an example of a problem of growing concern to eye physicians. The advantages of modern civilization—numberless incentives to read and to do other near work, combined with the movies—come too rapidly, too forcefully for young eyes. Boys are not immune to this disorder, but for some reason—probably their more active, outdoor life—they do have it less often than girls. The age level at which this usually occurs is from around 10, when children first begin to develop and cultivate their reading habits, to 18 or 19, when the structure of their eyes become more fixed. There is little or no pain associated with the condition, a negligible amount in proportion to the seriousness of the situation, and headaches are uncommon.

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Nearsightedness, or as it is scientifically called, myopia, happens to children like Sheila, from the upper strata of families, too frequently to be considered a coincidence. Investigators point out that the constant stimuli, such as the desire to surpass their classmates or praise from their parents for reading books beyond their years, and the wealth of books and magazines, not to mention the funny papers, more than overbalance an otherwise healthy regimen.

Most infants' eyes are very short, so that actually, at first, nearly all are quite farsighted, but as the child grows, the eye elongates, giving perfect vision if the lengthening of the eye stops at the right time. In some individuals it stops too soon, leaving them farsighted; in others it overshoots the mark, and myopia is the result. This growth of the eye seems to be most active between the ages of 6 and 16, the time that the long bones show their fastest lengthening. It is during this period that nearly all cases of myopia are developed, while cases in which myopia has already appeared become more severe.

Statistics have been accumulated showing that particularly in school myopia regularly increases both in prevalence and degree during the growth period and occurs especially among those who are using their sight continuously for fine work. Thus it occurs particularly among students, draftsmen, for example, and is not often found in savages.

Nevertheless, eyestrain cannot be mentioned as the sole cause, for only part of those who strain their eyes become nearsighted. What, then, are the additional factors that must be present to favor the development of myopia due to near work?

First should be listed a predisposition to myopia caused by definite anatomic peculiarities such as weak supporting structures of the eye or abnormally placed muscles or nerves. Such anatomic deficiencies are apt to be inherited, and the hereditary character of myopia is thus readily explainable. This does not mean that the children of nearsighted parents are born nearsighted; however, if they are subjected to constant eyestrain they show a much greater tendency to become myopic than children of parents with normal eyes who might be subjected to the same amount of eye strain. Secondly, there are circumstances which necessitate excessive eye effort, as is the case when work is performed in poor light or continued too long.

When the normal eye of a child, or of an adult, looks at an object that is 20 feet or more away, the focusing mechanism composed of the lens and muscles is at rest, When the object is closer than that, however, muscular effort must be made, and the nearer the object the greater the effort—both inside the eyeball, where the lens must be thickened, and on the outside, where are attached the muscles which converge or pull the eyes together.

So in reading, which is done at the nearest point that the eyes can comfortably see, there is a constant tug on the eye spheres to hold them converged. In an adult the supporting structures of the globes are firm and unyielding, but in a child they are plastic and will stretch. Yet they do not possess the property of being elastic, for they are incapable of springing or moving back to their former position.

Myopic children who see fairly well nearby but poorly at a distance develop the habit of blinking or squinting to decrease the blurring; this is sometimes the reason the children are brought to the physician. The child, like Sheila, has usually discovered for herself that she can see a movie much better if she sits close to the screen, and she usually refuses to sit anywhere else. An attentive and helpful teacher usually places such a pupil in the front row of the schoolroom.

As the doctor proceeds with the examination and measures the amount of refractive error, it becomes obvious to the parents that correcting lenses are to be prescribed. This is exactly what most of them wish to avoid, and the examiner is often queried as to the possibility of eye exercises or drugs in their stead. But no drug, not even the new miracle of sulfanilamide and its related compounds, can be of any assistance. In a few advanced cases, treatment with calcium in large doses and glandular extracts will assist in rendering the eye more firm, but in the majority of children such attempts would be useless.

"Weak eyes" is the term usually employed inaccurately to mean

those who need glasses. In the correct usage it does not signify those eyes which are out of focus but those that are diseased or stretched to unusually abnormal length. In this particular eye disorder—for myopia is not a disease but an unnatural condition which may possibly become progressive—exercises of the eye are of no merit. In certain other conditions they are indicated—such as cases of cross-eyed children, who are benefited immeasurably by special eye training methods. But the myopic eye is suffering from overwork and needs rest; regardless of opposition of parents or child, there is no satisfactory substitute for glasses. In addition, in nearly all cases, all reading except that required by school must be stopped; in the more advanced cases, even school itself must be stopped for a few semesters until the eyes are stronger.

The type of lens needed is the concave kind, which is thicker at the edge than in the center and diverges the rays of light so that they focus on the retina, the part of the eye that "takes the picture." Not many parents are still deluded by the fallacy that a child is "too young to have glasses fitted." Almost every one is familiar with the fact that doctors use "drops" to dilate the pupils and relax the muscles inside the eye so that the inner dimensions can be accurately measured. From this can be computed the actual lens or combination of lenses that are needed without ever asking the child to judge whether any lens is "better or worse." As indicated previously, whenever the glasses are removed, the vision becomes poor; therefore, they must be worn all the time when good vision is desired.

The chief factor in the prevention of this condition is careful observation of the child by his parents, which is not a difficult task but a continuous one. Because of the painlessness and insidious development of myopia, bi-annual visual testing by a physician or health nurse, while it is important and should be done regularly, will not suffice alone. By nature children are often careless, and the family must be constantly on guard to see that they have proper lighting and proper position for reading. Certain commercial vitamin preparations which advertisements would lead us to believe are essential and confer impregnable health should not be taken too seriously.

The amount of reading and the kind of lighting—the new fluorescent type is excellent—should be supervised; at no time should the child be allowed to read in bed. Many schoolrooms do not have proper illumination, and alert school officials should see that lighting is correct. Growing children should be encouraged to play outdoors whenever possible, and especially should this be insisted on when a child shows any tendency to become a "bookworm."

It is plausible that some intelligent parents would not consider the wearing of glasses any more tragic than braces for the teeth; certainly, there is nothing truly appalling about having to wear glasses. However, it is the opening wedge of several much more serious possibilities; the amount of stretching of the eye may increase in a few weeks or months, necessitating stronger lenses. Even when meticulous care is given, the degree of myopia may increase slightly. This causes no anxiety, but if the rate becomes rapid, "progressive myopia" develops, necessitating frequent changes to stronger and stronger lenses. When this has continued for some time and the myopia is advanced, the tissues are stretched until they are quite thin and are unable to withstand severe infections and mild injuries as can normal eyes. Thus a moderate blow to the eye, such as that received from the force of striking the water when diving from a springboard, might cause a separation of the retina from supporting structures and result in blindness.

Language Problems in Children

By EDWIN M. COLE, M.D.

An important problem too often overlooked by parents — language difficulty — is explained in Dr. Cole's forthcoming HYGEIA article.

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Books ON HEALTH

Marriage and Family Life

By Gladys Hoagland Groves, Director, Marriage and Family Council, Inc., Chapel Hill, N. C. Cloth. Price, $3.50. Pp. 526. New York: Reynal & Hitchcock, 1942.

Clear, concise, authenticated out of a long experience in teaching and marriage counseling, this book is a valuable addition to the literature on marriage. It is practically encyclopedic in scope, as indicated by its five hundred pages, for it is not wordy but sharply focused and to the point. The method of approach is largely that of case reporting with explanatory text.

It is not primarily a book on sex in marriage; sex is dealt with sensibly, with neither overemphasis nor underemphasis. It is in every sense a broad gage discussion of marriage in all its aspects, beginning with the childhood of the marriage partners, from which stem many of the problems of later life, including marriage problems. The book is divided into four principal parts, of which part I is concerned with the family background of the individual, part II with preparation for marriage, part III with being married and part IV with the cases on which the book is based. In this connection a slight objection might be raised to the manner of organization. Although large numbers of case reports are relegated to part IV, which becomes a sort of appendix, many others, perhaps even more, appear in the text itself. The separation of cases from text keeps the reader leafing back and forth—a mild annoyance which might have been avoided by including the cases in the text where they are appropriate.

In part I are chapters discussing family life today, belonging to a family, being a father, being a mother, being an infant, being a child, being adolescent, and boy-girl relationships. In part II the chapters deal with the meaning of marriage, courting, society's stake in marriage, choosing the mate and being engaged. In part III are chapters on personal adjustments, family finances, roles of husband and wife, modern marriage, the marriage counselor, becoming parents, and democratic family life. Significantly absent is any chapter title "Sex in Marriage"; sex is dealt with throughout as a broad underlying basis for many facets of life and marriage, including numerous apparently nonsexual phases.

Though lengthy, the book is not tedious. Its length is fully justified by its completeness. It should be a valuable book in any household, though it may not be comfortable reading for the "head of the family" of either sex who forgets that even spouse and children are people.

W. W. Bauer, M.D.

Teaching Safety Education in Secondary Schools

By William Ralph LaPorte, Charles Henry Hunt and Floyd R. Eastwood. Cloth. Price, $1.50. Pp. 181. New York: Prentice-Hall, Inc., 1942.

Teaching safety in schools is being demanded more and more by parents. The chapter here on safety control and physical education is especially good, as it gives in detail the controls necessary for the various sports and play. The bibliography and list of source material will be of exceptional help to the teacher who takes her teaching obligations seriously.

P. A. Teschner, M.D.

Elements of Healthful Living

By Harold S. Diehl, M.A., M.D., Sc.D. Cloth. Price, $1.75. Pp. 322. New York and London: McGraw-Hill Book Company, Inc., 1942.

This book is a brief version of the author's highly successful and most comprehensive volume, "Healthful Living." It contains, as its title indicates, the principal elements of the larger book and, as such, it furnishes a complete and highly satisfactory presentation of the facts needed by lay persons for a more successful solution of their health problems. It is unquestionably authentic, exceptionally readable and entirely adequate in its coverage of the field. Whether it is used as intended for a college text, as a reference book in high school or a helpful guide in the home, it should be equally useful.

W. W. Bauer, M.D.

Progressive Basketball

By Everett S. Dean, Cloth. Pp. 190. Leland Stanford University. Published by the author, 1942.

One of the essentials for the author of an informative book would seem to be knowledge of his subject; another, ability to convey his knowledge to the reader. This author has both. His many years of eminently successful coaching of basketball at the University of Indiana and Leland Stanford University evidence his knowledge. By clear and orderly statement and by excellent illustrations he has made his meaning plain even to one who is not an expert.

Mr. Dean's conception of the relationship to education and life of a team game like basketball is sound. He feels that the game should be fun for the participants. All this is refreshing from one who might be excused for overemphasizing his own particular part of the educational and recreative procedure.

The book covers training, player psychology, fundamental skills like footwork, passing, shooting and guarding; offense, defense—in fact all details which might interest a coach. The reviewer read it from cover to cover with enjoyment and recommends it as the best book of the type which has come to his attention. It is valuable for coach, player or spectator.

Dudley B. Reed, M.D.

Civilian Health in Wartime

By Francis R. Dieuaide, M.D. Cloth. Price, $2.50. Pp. 328. Cambridge, Mass.: Harvard University Press, 1942.

This book is a brief survey of well known hygiene principles, with special reference to their application to a nation at war. It opens with a chapter on the impact of war on health. The next two chapters deal with nutrition. These are followed by six chapters on safety from infectious diseases; shelter and raiment; mother and child; the aging and the aged; occupation and recreation; doctors and nurses; mental calm and vigor. A

discussion of morale and the second World War is presented as an epilogue, and this is followed by suggestions for additional reading. There is a good index.

The book is factually sound and objectively written. The material is interestingly presented in a readable style. Exceptionally good are the chapters about doctors and nurses, mental calm and vigor, and morale.

W. W. Bauer, M.D.

Building Morale

By Jay B. Nash, Ph.D. Cloth. Price, $1.00. Pp. 154. New York: A. S. Barnes and Company, 1942.

A prominent American psychologist recently acknowledged in a public meeting that the group with which he is working on issues of morale had thus far failed completely to come to grips with the subject and had no accomplishment to report. Certainly the problem is an elusive one, and a small, terse, hard hitting book such as this is timely.

In 1920, after the last World War, G. Stanley Hall published a much longer volume on morale, and it is interesting to note how closely the viewpoint presented here coincides with Dr. Hall's. According to Hall: "Morale is simply this—to keep ourselves, body and soul, and our environment, physical, social, industrial, etc., always at the very tip-top of condition. It implies the maximum of vitality, life abounding, getting and keeping in the very center of the current of creative evolution; and minimizing, destroying, or avoiding all checks, arrests, inhibitions to it." In much the same vein, Nash states: "Morale means unity of purpose plus dynamic action in pursuing its accomplishment. This applies to nations as a whole but is no less essential in the life of successful individuals. Morale emerges from an individual who is integrated."

Throughout the book, as we should expect from one who has worked always in the field of physical education, the emphasis is on the basic necessity of sound bodies.

The similarity in viewpoint does not, however, stop here. Nash, like Hall, traces the dynamics of morale to the instinctive urges which lead to purposive action. Of these Hall says: "Morale differs from morality and conscience in the recognition which it gives to instinctive, unconscious, and habitual impulsions to virtue. Conscience involves critical deliberation within the narrow focus of self-consciousness, but excludes most of those powerful energies of the soul that operate beyond the realm of direct awareness." The pattern of morale, which Nash believes is based on just such instinctive drives, must embrace three elements: (1) a significant challenge, (2) hope of success, and (3) approval of accomplishment. Lacking these, we face decay whether in our individual or our national life.

Within its short compass the book is stimulating and thought-provoking. It offers trenchant criticism of conventional education and ruthlessly, if briefly, points out the "softness" and serious physical defects disclosed by recent medical studies of draftees. It contains much sound child psychology and many constructive suggestions for bringing ourselves into that tip-top condition to which Hall refers. Despite a rather choppy style, with somewhat too much dependence on adjurations of the "let us" type, and an underlying assertiveness which gives the reader little opportunity to think with the author, the book should prove suggestive and helpful to parents, educators, and physicians—to all indeed who are concerned with the problem of national fitness.

Isabelle Kendig, Ph.D.

You Must Relax

By Edmund Jacobson, M.D., Cloth. Price, $1.75. Pp. 261. New York: Whittlesey House, McGraw-Hill Book Company, Inc., 1942.

The author of the present popular book—a revised edition—is the leading expert in the field of relaxation therapy. His thesis is and has been for many years that people who learn properly how to relax are able not only to lead a more healthy mental life, but even to overcome certain mild mental maladjustments. Objectively, he has accomplished a great deal in his own practice and his more technical book on this subject, "Progressive Relaxation," has been widely read. In "You Must Relax," Dr. Jacobson emphasizes the need of relaxation, particularly during wartime, and most of the book consists of instructions on how to relax according to the methods he has devised. He believes that a good deal of his relaxation therapy should be carried out under a doctor's direction, and he shows not only how to relax physically, but also how to get some mental relief.

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There is considerable emphasis on his methods of obtaining sound sleep, which, although somewhat unorthodox, have proved to work practically. This is an interesting and perhaps valuable self help book and certainly can do no harm in these days when people need to relax more than they do and are better able to do it deliberately. How many people who need to relax actually are able to force themselves to follow the directions given in this book is another matter.

LOWELL S. SELLING, M.D.

How to Teach Nutrition to Children

Mary Pfaffmann and Frances Stern. Cloth. $2.00. Pp. 224. Illustrated. New York: M. Barrows & Company, 1942.

The children of today are learning far more about the essentials of a well balanced diet than was ever told to their fathers and mothers in a previous generation. Today we know that an understanding of the essentials of nutrition is fundamental to good health and growth. The ability of the authors in teaching is based on years of experience both as teachers and as practical dietitians. They have been guided by the available medical literature. If there is any criticism to be made, it deals with the usual overemphasis on the danger of sweets. M. F.

300 Sugar Saving Recipes

By Harriet H. Hester. Cloth. Price, $1.50. Pp. 181. New York: M. Barrows & Company, 1942.

Already in its third large printing, this book is an aid to those who have to ration their sugar and balance their meals. The book provides great numbers of recipes which have been tried and full advice about canning and preserving with restricted sugar rations. It is well printed in large type and has a fine index. M. F.

NOTICE

Books reviewed in this section should be ordered from booksellers or direct from the publishers. They may not be secured through HYGEIA or the American Medical Association, unless published by this organization. The following list contains the complete addresses where the publishers mentioned in these reviews may be reached:

A. S. Barnes and Company, 67 West 44th Street, New York City.

M. Barrows & Company, 286 Fifth Avenue, New York City.

Harvard University Press, Randall Hall, Cambridge, Massachusetts.

McGraw-Hill Book Company, 330 West 42nd Street, New York City.

Prentice-Hall, Inc., 70 Fifth Avenue, New York City.

Reynal & Hitchcock, Inc., 386 Fourth Avenue, New York City.

Progress Against Paralysis

(Continued from page 181)

muscles must be held by suitable splints, so that the strong opposing muscles do not overstretch them; at the same time physical treatment is given by gentle massage, exercise and electrical stimulation to keep the muscles and other parts in best possible condition until the damaged nerve fibers recover. Only in case of extensive injury is it necessary to suture or graft torn nerve endings. It may be confidently expected that most of those affected by nerve injuries in military action will be restored to full activity by the skilful application of these principles.

Paralysis of the facial nerve, also known as Bell's palsy after the English physician who first described it, is the most worrisome among peripheral nerve troubles. It comes usually like a bolt out of a clear sky. After a long automobile ride or sleeping in a draft, a "crooked face" suddenly horrifies an otherwise perfectly well person. Many of its victims are women, who can usually be reassured that they will completely recover. Some of the mild cases may disappear without any treatment in two to three weeks; other cases, however, may last several months and sometimes end with permanent weakness of some small muscle causing mild facial disfigurement. For this reason and because it has recently been shown that early skilful treatment by heat and electricity will not only greatly comfort the patient but often speed up recovery, it is better that all sufferers from "rheumatic" facial paralysis should receive the benefit of such treatment from the very beginning. Care must be taken to protect the eye which cannot be fully closed by plain glasses and frequent washes. The facial nerve which exists from the skull in front of the ear may be affected also by injuries to the skull, by inflammations within the ear and by operations around the ear. For long standing injuries of the facial nerve ingenious nerve repair operations have been devised.

Infantile paralysis or poliomyelitis is a much dreaded form of paralysis on which public interest has been focused in recent years and in which much progress has been made. Its principal difference from paralysis of peripheral nerves is that in poliomyelitis a virus infection disables nerve centers in the spinal cord and at times in some parts of the brain; at the same time, according to latest investigations, this virus also directly attacks the muscles, causing many of them to become spastic. It also disturbs the function of the nerve fibers and interferes with the transmission of motor impulses to muscles, even when these muscles are not paralyzed. Poliomyelitis may kill its victims in the early stage by paralyzing the muscles of respiration. Fortunately, in the great majority of cases, in the final outcome only a few muscles become actually paralyzed. The slow recovery of all affected muscles and the deformities in the limbs and the spine which occurred frequently in the past made the treatment of this form of paralysis a long drawn and expensive one.

The treatment heretofore generally administered in the early stage of infantile paralysis has been the isolation of patients, treatment of the feverish condition and the immediate splinting of the affected muscles. Keeping the muscles at absolute rest for a long period was the main feature of the so-called orthodox early treatment; it was based on the fact that in each limb two sets of muscles—flexors and extensors—balance each other by their pull; when one set of these muscles becomes paralyzed, the other, unaffected set will go into "contracture" and cause faulty position and stiff joints. In order to keep the muscles in a "balanced" position, early and persistent splinting was instituted with the idea of preventing such excess pull and subsequent deformities. However, with the old method, in many cases after removal of the splints the joints were stiff and many muscles were contracted, wasted and powerless. This was of course attributed to the original paralysis. The so-called after-treatment consisted of increasing muscle power by exercise in and out of expensive pools and support of weak and paralyzed parts by braces, splints and frames. For joints remaining stiff and for

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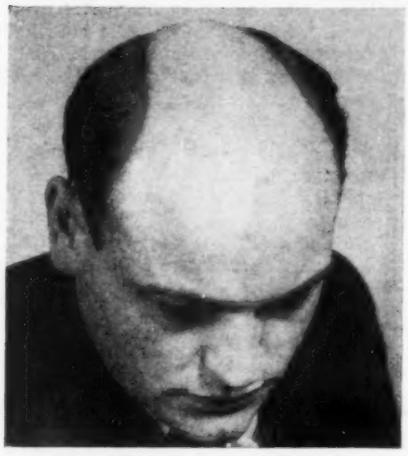

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contractures of various kinds ingenious operations were performed on bones, muscles and tendons.

It is a well known story by this time how Sister Kenny, an Australian nurse, came to care for children stricken with poliomyelitis or infantile paralysis in the bush country there. Unhampered by specific instructions, she drew on her general nursing intuition: she kept the patients at rest until their pain ceased and as soon as it was possible gently to move the affected limbs without causing pain, she did so. By mental encouragement and with persistence she made her patients practice the motion which they seemed to lack; at the same time she kept muscles from pulling for which they were not intended. Next she proceeded cautiously to encourage the children to stand and to walk. She noticed with great satisfaction how well most of the stricken children regained the use of their limbs under this treatment without using any braces. When Sister Kenny first reported the good results observed with early exercise and the omission of long bed rest, she encountered much doubt from many and outright disapproval from some, but gradually these adverse opinions were overcome by the fact that compared to patients treated by the old method, the patients treated with the "Kenny method" were more comfortable during their siege and on recovery developed no contractures, joint deformities or spinal curvatures.

Miss Kenny came to the United States in 1940, and gradually extending observations of orthopedic surgeons, physiologists and physical therapists by this time have clarified the principles of the early treatment of infantile paralysis as advocated by Sister Kenny. The most important new fact established appears to be the existence of widespread muscle spasm in all cases of poliomyelitis. This symptom had not received any attention under the old method; the contention is that placing the limbs in splints tends to increase this muscle spasm and leads to hardening and, later, to total wasting of muscles which were not originally paralyzed; all this may then be followed by contractures and deformities. Immediate treatment by hot packs not only tends to decrease the spasm but also enables the starting of gentle movements of the affected muscles as soon as they cease to be painful. At the same time, every mental and physical effort of the patient is directed to maintain what Sister Kenny calls "mental awareness" of the affected muscle. This "muscle training" is a delicate procedure and involves a thorough knowledge of functional anatomy; instead of aiming chiefly at increasing muscle power, it endeavors to practice balanced and correct use of the muscles.

The public has been taking great interest in the Kenny treatment, and the glowing reports of popular magazines have raised many a false hope in older victims of the disease, for many people do not seem to comprehend that this is a treatment chiefly for the early stages and can do little for those attacked by the disease several years ago. The well proven methods of proper support and suitable exercise are still important in the care of these older patients. The Kenny treatment unquestionably will result in a quicker and much more complete recovery in the great majority of new cases. At the same time the large problem of eradicating the dreaded disease altogether, or at least, of minimizing its onslaught at the very beginning, still prevails. Persistent laboratory research should ultimately find the means either to immunize children and adults against infection with the poliomyelitis virus or to attack by chemical or other methods the virus invasion in the body before it has time to destroy the sensitive nerve structures.

In rounding up the discussion of the various forms of paralysis mention must be made of paralysis due to disturbance of the motor centers in the brain itself. Cerebral palsy or spastic paralysis in infants and children is due to an arrest in brain development before birth or may be caused by injury or infection of the brain during or after birth. In these unfortunate cases asymmetrical growth takes place in the child's limbs, and so-called spastic deformities occur; there is usually present some degree of mental impairment. Treatment consists essentially of a long program of well planned muscle training. In some cases orthopedic operations can correct deformities and equalize the power of opposing muscles.

Stroke or apoplexy is a condition in which hemorrhage occurs into a part of the brain or there is clot-

ting of blood in one of the arteries in the brain; it occurs as the result of blood vessels weakened by disease and high blood pressure. If such a change affects the motor centers of the brain, it is usually accompanied by paralysis on one side of the body. In many cases this paralysis clears up as the clot absorbs; in other cases it leaves in its wake a spastic arm or leg, the function of which is greatly impaired. After the essential general medical care, skilful treatment by heat and exercise may help these patients considerably.

General paresis and locomotor ataxia are diseases of the brain and spinal cord caused by late effects of an infection with syphilis; this brings on destruction of nerve cells and nerve fibers in the brain or the spinal cord or both and gradually leads not only to weakness of muscles, but also to a general weakening of all the faculties of the mind. The term "general paralysis of the insane" fittingly describes the tragic finale of this process. Not so many years ago a diagnosis of general paresis meant that the patient was doomed to finish his life as a hopeless derelict in a mental hospital. Two modern treatment methods have made a wonderful difference in the outlook of this condition. One is the extended use of arsenicals and other drugs which attack the germs of syphilis; the other is the use of fever treatment. The large majority of patients so treated regain their strength and clear up in their mental condition if the disease has not progressed too far. There exists now a decided hope for recovery to every early case of general paresis.

This necessarily brief review of the large subject of the treatment of paralysis should convince every one that there is hope for conquest in most cases of this condition when skilful early treatment is applied. This is an especially gratifying knowledge because of the large number of nerve injuries to be expected in connection with the world conflict. In the treatment of infantile paralysis much further progress may be expected in addition to the newer knowledge of how to keep the effects of the infection at a minimum and the development of direct methods of combating the infection, perhaps leading to the total eradication of this dreaded scourge.

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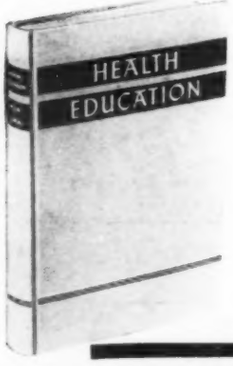

By the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association with the Cooperation of Advisory Committees

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street, Chicago

Dangerous Spiders

(Continued from page 193)

rantulas, occur throughout Africa, Martinique, Haiti, Mexico, Central America, Puerto Rico, San Domingo, Java and elsewhere. The natives hold them in awe, and much legend and lore have developed. The "cures" for the alleged ill effects from the bites have been fantastic and involved in superstition. There have been, however, scientific investigations, both by residents of these areas and by authorities in the United States. A general conclusion is that a few of these tarantulas may be poisonous to man, but the effects are local. The venom, as far as a normal, healthy human being is concerned, does not produce dangerous general symptoms.

The tarantulas of the United States have earned an awesome reputation. Scientists and laymen for many years held the opinion that such huge spiders surely possessed venom with a potency dangerous to man. This was negatively answered when human beings in several instances induced the creatures to bite them, and the resultant pain proved to be equal to about that of two or three bee stings. It has been ascertained that the tarantula secretes large droplets of venom, but that it is fairly impotent. Observations have further revealed that some species of tarantulas refuse to bite a human being unless coaxed at length, and it requires sometimes as much as half an hour of teasing! Experimenters have permitted these species to crawl on their hands and shirt fronts and about their persons.

Within the United States, sixteen species of trapdoor spiders have been discovered, and eight of these are recorded exclusively from California. Others occur throughout the Southern and Southwestern states, and one species is reported to thrive as far north in Virginia as the Potomac. Trapdoor spiders are also found in Central and South America, portions of Continental Europe and other parts of the world. Naturalists marvel at their ability in excavating a burrow, lining it with water-proof silk and closing it with a hinged door. Scattered, unverified reports through the years mention much suffering, and even death, resulting from their bite. Scientific investigation nevertheless has discounted this conclusion. Symptoms resulting from their bite under normal conditions will be local, and they as a class cannot be considered as greatly harmful to man.

Most widely distributed of the spiders dangerous to man are those which belong to the genus *Latrodectus.* They are to be found in each of the continents, and for more than a century well founded reports have been recorded concerning the suffering from their bites. In the United States there has been reported in California *Latrodectus geometricus,* and in each of the forty-eight states *L. mactans.* This last is the ill-famed black widow spider. The symptoms from its bite strikingly resemble these resulting from the bite of its prototypes throughout the world.

A cause for bewilderment to many people has been the fact that some victims of the bite of the black widow experience no ill effects, others only mild effects and still others agonizing pain. Most significant reason for this is that the striated muscles which surround the poison glands of the black widow spider function only when she chooses. She may thus inject her fangs into a human being and deposit no venom, or, again, she may secrete the maximum contents of her poison sacs. Then, too, she may just prior to attacking man have used her venom in subduing an obstreperous insect, such as a grasshopper. Her fangs approximate only $\frac{1}{50}$th of an inch in length and may not break through if inserted where the skin is thick and tough. The physical and mental condition of the patient is a factor. The toxin has a quantitative effect, and a given quantity would tend to be more dangerous to a child than to an adult. Persons affected with certain diseases and the aged are most likely to experience serious consequences.

A goodly quantity of venom injected into a normal person, however, will bring about typical

symptoms. At the time of the bite there is usually a mild, burning sensation, like that of a sharp pinprick, which lasts for a few minutes. The effects spread by continuity. For example, in the case of a person bitten on the hand, the pain progresses upward to the elbow, from there to the shoulder and then down the trunk of the body toward the region of the kidneys. Afterward, the abdomen becomes rigid and boardlike. The whole body most likely will ache. There may be various other symptoms, including cold perspiration, nausea, vomiting, difficult breathing, paralysis and delirium. The most important phase is the pain. One report says that the victim "felt as if a current of electricity kept running through his arms and legs." So severe is the pain that in many instances the patients roll and toss and cry out, and some have threatened to commit suicide.

The banana spider, various species of tarantulas and their relatives, the trapdoor spider, *Atrax formidabilis* and *A. Robustus* of Australia, have all caused varying degrees of injury to man. Only these and spiders of the genus *Latrodectus*, of which the black widow is a heralded member, need to be feared, and one may, as the naturalists have entreated, delight in studying the habits of all other specimens. The investigator must know the markings of the black widow spider: It is ebony in color except for a red mark on its underside, shaped as an hour-glass, or a red spot at its rear near its finger-like spinning organs; a bulbous abdomen with the forepart of its body, by comparison, being much smaller; and eight long, wiry legs. Its web is composed of coarse, criss-cross silk which is often found in the dark corners of garages, attics and basements, but which also may be located in any convenient place. Knowing this, one can be on guard, but if bitten he should immediately obtain the services of a doctor.

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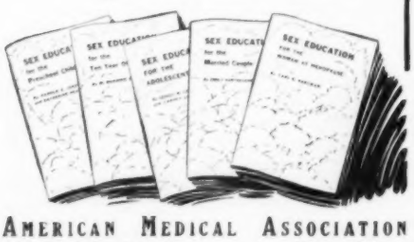

AMERICAN MEDICAL ASSOCIATION
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Fever Finders

(*Continued from page 187*)

By the middle of the eighteenth century, the thermometer fad was appearing in each generation of physicians, in every country. A German doctor made himself unpopular with easy going clinicians in 1745 by declaring publicly that the time honored method of determining fever by feeling the patient's brow was inaccurate and unsatisfactory. Few were willing to take the trouble to hold a bulky instrument under the armpit for seven or eight minutes, as one doctor wrote that he did routinely, and then add a degree or two to the reading because it "would rise that much if left in place long enough." The man who observed this practice, de Haen, was one of the first to suggest that there was such a thing as a "normal" temperature, and that variations might be an indication of disease.

At about the time our own forefathers were weightily resolving that "these united colonies are, and of right ought to be, free and independent states," an Englishman by the name of John Hunter popped up with a 7 inch thermometer. The casual attitude toward thermometry at that time is apparent from the fact that Hunter's improvement, which should have been widely accepted as facilitating clinical observations, seems to have disappeared with its inventor; the foot long variety was still in use a hundred years later. Nor did thermometers, of whatever size, gain any great popularity in the early years of the nineteenth century. The physician who attended Napoleon at St. Helena was a perfectionist of his time for recording that his patient's "heat" was 96 degrees. A few years later, Dr. David Livingston, a physician who is remembered best for getting himself lost in the jungles of Africa, published a diary which demonstrated the triumph of scientific inquiry over major distractions. "The bulb held under my tongue stood at 100°," Livingston said in one place, "and under that of the native, at 98°." A possible explanation of the African's greater coolness, of course, is that he, at least, knew where he was.

One of the principal difficulties with the clinical thermometer up to this time had always been that removed from the patient's mouth or armpit, the mercury would immediately retreat toward room temperature, with an inevitable loss of several degrees before it could be raised to eye level and read. An Englishman named Allbutt gets credit for putting a stop to the lame backs and stiff necks which were the lot of conscientious physicians who tried to read the thermometer, so to speak, on location. Allbutt introduced a speck of air into the tube of his thermometer to separate a length of the mercury as it moved up the scale. When the highest temperature was recorded, only the mercury *below* the air speck would retreat, and the reading could then be taken at the doctor's convenience. It was this introduction of the principle of self registration, as much as anything, which led to the remark by a colleague of Allbutt's in 1866 that "the day is not far distant when the physician will consider the thermometer not less indispensable to him than the stethoscope or microscope, and when even the surgeon will not neglect the temperature."

As a matter of fact, that day was close at hand. In 1871, Dr. Carl Wunderlich published in Germany the tabulated results of more than 1,000,000 temperature observations taken from 5,000 patients who were visitors to his clinic. The first broad scientific study of thermometry, Wunderlich's work definitely established the importance of temperature observations in clinical diagnosis, contributing significantly to the knowledge of fevers and other pathological conditions in which variations of temperature are involved. Wunderlich's observations demonstrated conclusively that the healthy man had a constant temperature, and that variations, other than the negligible changes which he proved were frequently apparent between readings taken in the forenoon and evening, were specific evidence of disease.

It remained for an Englishman, Aitken, inspired by Wunderlich's

results, to recognize the importance of temperature observations in the diagnosis of pulmonary tuberculosis, and to show the effects on temperature of food and alcohol consumption. Elementary as they were by today's standards, Aitken's studies were the forerunner of recent research showing a relationship between body temperature and basal metabolic rate. A contemporary of Aitken's and Wunderlich's has the distinction of being the last man publicly to deprecate the importance of temperature observations. "As a rule," wrote diehard Ainslee Hollis, "I rarely exceed a single observation daily; in chronic cases one or two observations a week are usually sufficient. I can not allow this subject to pass without strongly reprobating the practice of taking in severe cases several observations in the day; this can do no commensurate good to science compared with the inconvenience, not to say distress, which it occasions patients who have to submit to it." Thus spoke the voice of reaction, forever after silent as the years have continued to accumulate evidence of the clinical significance of temperature.

Thermometers today are manufactured to meet the exacting specifications of a medical profession which is thoroughly alive to the pervasive importance of temperature observations as an aid to diagnosis. Simple as our streamlined little thermometer might look alongside Currie's outsize number, it is actually much more complicated. Each instrument consists of six separate parts: stem, bulb, mercury, end, contraction and scale. The stem, or shaft, is shaped to provide a magnifying lens permitting easy reading as the mercury rises through its bore, which is about the width of a human hair. In the manufacturing process, the stem is fused onto the bulb, which may be one of several general sizes and shapes depending on whether it is designed for oral or rectal use and whether or not "instant" registration, in which the mercury reaches its full length after a one minute exposure, is desired. To insert the mercury, manufacturers heat the empty bulb, driving air out through the open bore and creating a partial vacuum; the open end of the stem is then placed in a vessel of mercury, and atmospheric pressure forces mercury up the bore into the bulb.

The end is a hollow glass bowl, about the size of a marble, which makes its brief appearance during manufacture, serves its purpose and is discarded before the thermometer is finished. Since atmospheric pressure is required to get the mercury into the bulb, moisture, air and other impurities inevitably find their way in too, in quantities which would make accurate registration impossible if they weren't eliminated. The end is blown into the top of the stem after the mercury is inserted, and the thermometer is placed in an oven and heated until the mercury boils, driving the air and moisture up into the reservoir or bowl at the end. The stem is then sealed just below the end, which is amputated, leaving the pure mercury in a satisfactory vacuum to permit accurate and uniform registration.

The modern counterpart of the air speck which Allbutt devised at the time this country was taking sides over *Uncle Tom's Cabin* is the contraction, a feature which provides the self registration Allbutt achieved without the necessity for introducing air, with attendant inaccuracy, into the bore. The contraction is nothing more than a bend in the bore which reduces its hair's breadth diameter to the caliber of an anemic cobweb. Heat applied to the bulb will force the mercury readily through the contraction to register, but only a brisk shake will send it back after the observation is taken. Contractions require some pretty fine artistry by the glass blower; too large, the contraction will permit the thermometer to lose its self registration function and become what the hospital supply trade calls a "retreater." Too small, it requires a shaking that like as not will send the intrument flying out of the nurse's hand to shatter on the floor along with her nerves.

Important as the contraction is, it's the scale, of course, that finally puts the thermometer to work. The completed instrument is "pointed" at specific figures like 98° and 108° by immersion in circulating water kept at constant temperature by electrical heating. With these points as guides, the entire scale is etched into the glass with acid, the etching is painted for easy reading and the thermometer is ready for service.

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SCHEDULE FATIGUE

IN SCHOOL CHILDREN

The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, taking cognizance of the problem of fatigue in school children and its possible unfavorable influence upon health, has authorized a subcommittee, consisting of W. W. Bauer, M.D., Glenville Giddings Jr., M.D., N. P. Neilson, Ph.D., and George D. Stoddard, Ph.D., to prepare a statement which, having been approved by a vote of the entire Joint Committee, is presented herewith.

W. W. BAUER, M.D.
Secretary

CHARLES C. WILSON, M.D.
Chairman

THE JOINT COMMITTEE has received questions about two specific problems, both of which bear on the same general subject, namely, "schedule fatigue" in school children. One of these problems, briefly stated, has to do with a proposed session in a small city school system which will be of such length that children will have no opportunity to procure food between the hour of 7 a. m. and the hour at which they can reach home after a school session closing at 2 p. m. The other problem on which information was requested has to do with a schedule in which so-called extracurricular activities have been multiplied to a point where little time remains for the children to indulge in unsupervised play, pursuit of hobbies, loafing, or rest other than sleep.

With respect to the first problem, the salient points are as follows:

The interval between meals is to some extent a habit as far as adults are concerned. This is not so with children. They require, in proportion to their size, much larger quantities of food than adults. They use up a great deal more energy. At the same time, their stomachs are small and they cannot eat large quantities of food. The emptying time of the stomach is two to three hours, depending in part on individual variations and in part on the amount of fat in the diet; diets high in fat require a somewhat longer time for digesting in the stomach. It is apparent that an interval of more than seven hours between breakfast and lunch would be the occasion for sensations of hunger in most children, amounting to discomfort in some and possibly accompanied by faintness in others. If children get hungry they will find some means of eating, and this will probably be candy and similar things which can be carried in their pockets.

Since hot lunches can be served with the cooperation of women's groups in the community at small expense and without elaborate facilities, we believe it absolutely essential that if prolonged sessions are necessary, suitable provisions be made for hot lunches.

It seems to us, however, that not only is the question of food to be considered, but also the question of fatigue. Young children, especially, should not have a continuous school session without interruption or rest. They require intervals of relaxation and change of occupation.

Unless provision can be made for a suitable interruption for lunch and for feeding children a hot lunch, or at least a hot dish, we could not look with favor on any proposal for a school schedule which would keep children in an uninterrupted session from approximately 8 a. m. or 8:30 a. m. to 2 p. m. This applies to all children, but especially to younger children.

Still another consideration in a proposed long session is that children leaving school at 2 p. m. and proceeding home may be fed as late

as 3 p. m., at a time when the rest of the family is not lunching. They are likely to get a makeshift and inferior lunch at this off-schedule hour, or if they get a good lunch, their appetite for a normal dinner or supper may be impaired.

On the educational side it is hard to justify a continuous session six hours in length. A genuine recess, providing relief from scholastic tasks, would be long enough to include the hot lunch mentioned above. While an alteration of mental and physical activity is helpful in reducing tensions, there should be occasions for complete relaxation. This need is shared by pupil and teacher.

In addition to considerations already mentioned, a prolonged, continuous session involves the problem of fatigue, which is also involved in the second suggestion, wherein homework and such activities as band practice, band concerts, dramatics and other so-called extracurricular activities become excessive.

First, the Joint Committee recognizes that the term "extracurricular" is, or should be, outmoded. So-called extracurricular activities are a part of the educational experience of the child, and in that sense they are not extracurricular, even though they may take place outside the regularly scheduled school hours. In many schools, place is now being made for these activities in school hours, and homework is being minimized, especially for younger children.

It is now recognized that the school schedule should be so arranged that variety and alternation of activities are provided. Periods of desk or other confining study should be alternated with activities requiring exercise or bodily motion. The Victorian principle of complete silence and absence of motion in the classroom is outmoded because the modern educator recognizes that activity is the essence of a child's life.

The problem of excessive crowding of activities into the life of a school child is one that faces many mothers and teachers. It must be adjusted in each community and for each child.

Children vary greatly in their needs for rest and sleep. They also differ in personal qualities. Some children tend to thrive when they are kept busy and under direction, or at least guidance; many retain these characteristics throughout their entire lives. Others are more individualistic and want to do things according to their own ideas. The best balanced personalities are those capable of accepting a reasonable amount of controlled group activity but capable at other times of successful independent action. Because of such individual variations it is impossible to prescribe maximum or minimum allowances of prescribed activity or schedule programs for all children.

If the child is doing well physically, is making good school progress and is happy with a heavy schedule, there seems no good reason to deny him the opportunity for participation. If, on the other hand, he is irritable, hard to get along with and not doing well physically or in school, it may be that an overloaded schedule is at least one reason which might explain the situation and should, therefore, be investigated.

An important consideration when children's programs must be limited is that limitation must be accomplished without setting the individual apart as "inferior" or even "different." The instinct to be like others is strong in children and especially in adolescents, among whom it is practically a crime to be "different." Limitations of activity necessitated in special instances must be applied with tact and discretion, and whenever possible the initiative should come or seem to come from the child himself.

There is much possibility for misunderstanding between parents and educators with regard to progressive changes in education. Parents are prone to think of education in terms of their own school experiences and to resent innovations and changes. Time and attention should be given by school administrators and other school personnel to keep the channels of communication open between the school and the home in order that opinions, suggestions and criticisms may pass freely in both directions. Formal or informal conferences between the school and parent, or parent-teacher representatives, should be utilized freely for the discussion of curriculum fatigue and related problems.

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Medical News

OF THE MONTH

Frowns on New Type of Ski Equipment

Recent developments in ski equipment aimed at making the foot and ski act as a unit should be frowned on when skiing is used as a means of transportation, such as with mountain troops now being trained by the United States Army, John R. Moritz, Sun Valley, Idaho, declares in a recent issue of *The Journal of the American Medical Association.*

The author says that the subject of ski injuries is pertinent now "in view of the increased interest and participation in skiing. Considering the fact that the United States Army is engaged in the training of ski troops, there is additional practical interest in the type of injury which may be anticipated. . . . It is noted that approximately 75 per cent of the ski injuries reported in this study are the result of torsion (twisting) strain. . . . Consequently, any modification of skiing which will tend to decrease the application of torsion strain to the leg will reduce the number of injuries which are now being sustained. A review of the evolution of ski equipment shows that there has been a progressive tendency to approach a state in which the foot and ski act as a unit. The only noteworthy motion of the foot on the ski is a hingelike action of a few degrees. When the ski point becomes fixed in heavy snow, the foot also becomes fixed. Consequently the weight of the body going forward makes it necessary for something to give, and it is usually the lower extremity. This development in the type of ski binding now used has made for greater skill in racing and greater control in making turns and has permitted the perfection of a new style of skiing. However, there can be no question that it has been responsible for an increase in the number of torsion-strain injuries. To return to a 'safe' binding which would allow the foot to become disengaged from the ski when severe torsion strain is applied would reduce this group of injuries to a minimum. Such a suggestion will never be accepted by those who ski for the thrill of accomplishing the most that can be obtained from the sport and who are willing to pay the price of injury and disability when it comes.

"However, when skiing is studied as a means of transportation, as is the case when the mountain troops are concerned in the United States Army, a severely sprained ankle or a fractured leg is of considerable practical importance."

Cancer Education Program Still Ineffective

Our public education program on the cancer problem is still inadequate and ineffective, Charles R. Harms, Jules A. Plaut and Ashley W. Oughterson, New Haven, Conn., declare in a recent issue of *The Journal of the American Medical Association* in a report of their studies of the causes of delay in treatment of cancer in 155 patients.

It was found that only about one fourth of the patients had read about cancer and that all but two of these had obtained their information from newspapers and popular magazines. Only two admitted reading public health pamphlets.

The patient was found to be either wholly or in part responsible for the delay in 128 instances. All but seven of the 128 patient delays were initial delays. The other seven did not follow the physician's advice in spite of his efforts. Commenting on this the three men say that "The problem, therefore, appears to be mainly the initial delay or the interval between the onset of symptoms and the first visit to the doctor. . . ."

Diabetes and the Armed Forces

Studies reveal that the present rule to omit diabetic persons from the Selective Service appears proper, Elliott P. Joslin, Boston, declares in *The Journal of the American Medical Association.*

"The diabetic quota useful for military service is relatively so insignificant, the hazards which both the diabetic and the government would undergo if they were inducted are so great and the need for their services in civilian occupations, where they would be less exposed to complications, so apparent, that the present rule to omit them from the draft appears proper," he says.

Sex Control

Commenting on recent statements of John W. Gowen and Ronald H. Nelson that "in the sense of establishing means for sex control through specific agencies under man's guidance, the problem of the predetermination of sex may be said to be solved," *The Journal of the American Medical Association* observes in an editorial in a recent issue that "This startling discovery does not of course signify that it will be possible in the foreseeable future for parents to choose in advance the sex of their children. But it does establish for the first time on a scientific basis the fact that this can be done experimentally among lower animals by man-devised methods."

The work on which the sex differentiation statement was based concerned investigations in which the sex of the offspring of a species of fly known as Drosophila melanogaster was completely controlled so that 100 per cent males or 100 per cent females could be produced at will. A report on some of these studies was published recently in *Science.*